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DOMESTIC ENGINEERING

Plumbing & Heating Contracting and Merchandising

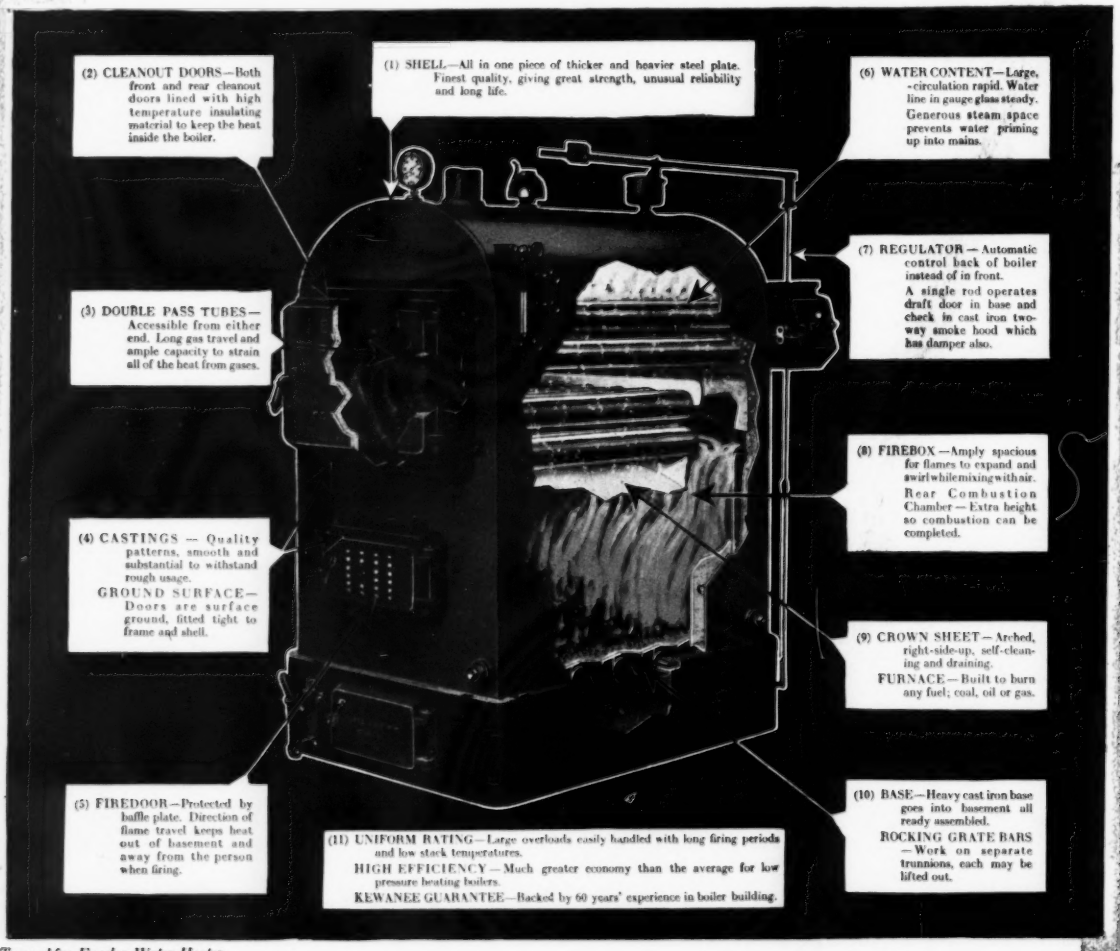
Pipe Salt Water

JULY 26, 1930

KEWANEE

Type "R" STEEL BOILER
for Homes and Smaller Buildings

COMPARE the new Kewanee Steel Boiler with any other small heating boiler made, and it is quickly seen that the buyer certainly *gets more* by investing in Kewanee. The sectional view shows some of the unusual Kewanee features. Ask for Catalog Number 88.


(2) CLEANOUT DOORS—Both front and rear cleanout doors lined with high temperature insulating material to keep the heat inside the boiler.
(1) SHELL—All in one piece of thicker and heavier steel plate. Finest quality, giving great strength, unusual reliability and long life.
(6) WATER CONTENT—Large, circulation rapid. Water line in gauge glass steady. Generous steam space prevents water priming up into mains.
(7) REGULATOR—Automatic control back of boiler instead of in front. A single rod operates draft door in base and check in cast iron two-way smoke hood which has damper also.
(3) DOUBLE PASS TUBES—Accessible from either end. Long gas travel and ample capacity to strain all of the heat from gases.
(8) FIREBOX—Amply spacious for flames to expand and swirl while mixing with air. Rear Combustion Chamber—Extra height so combustion can be completed.
(4) CASTINGS—Quality patterns, smooth and substantial to withstand rough usage. GROUND SURFACE—Doors are surface ground, fitted tight to frame and shell.
(9) CROWN SHEET—Arched, right-side-up, self-cleaning and draining. FURNACE—Built to burn any fuel; coal, oil or gas.
(5) FIREDOOR—Protected by baffle plate. Direction of flame travel keeps heat out of basement and away from the person when firing.
(11) UNIFORM RATING—Large overloads easily handled with long firing periods and low stack temperatures. HIGH EFFICIENCY—Much greater economy than the average for low pressure heating boilers. KEWANEE GUARANTEE—Backed by 60 years' experience in boiler building.
(10) BASE—Heavy cast iron base goes into basement all ready assembled. ROCKING GRATE BARS—Work on separate trunnions, each may be lifted out.

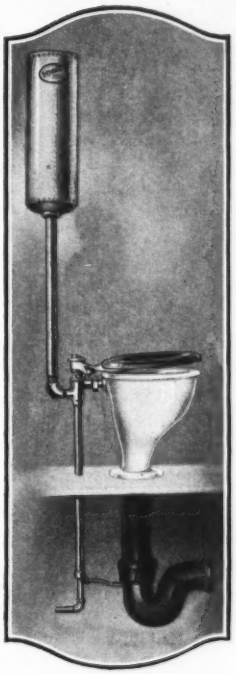
Tapped for Excelso Water Heater

KEWANEE BOILER CORPORATION

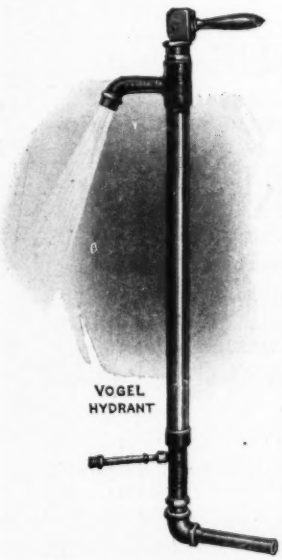
division of American Radiator & Standard Sanitary Corporation

Branches in Principal Cities KEWANEE, ILLINOIS MEMBER OF STEEL HEATING BOILER INSTITUTE

EVERY JOB WHERE YOU INSTALL VOGEL FROST-PROOF CLOSETS OR HYDRANTS IS A PROFITABLE JOB . . . .



Number One Vogel Frost-Proof Closet.
Simple in operation
Sturdy in construction.
Half a million in operation.



Vogel Frost-Proof Hydrant

Don't Neglect This Market

Private and public garages, yards of all sorts, farms, dairies, are all good prospects for Vogel Frost-Proof Hydrants. A great convenience any place.

THERE are sometimes jobs which look good but turn out to be unprofitable because of back calls for repairs, adjustments and other troubles.

But this never happens when you install VOGEL Frost-Proof Closets and Hydrants. When you install a VOGEL the job is done . . . You make your profit and keep it, because VOGEL Closets operate satisfactorily as soon as they are installed, and for years afterward.

Your profit is not only in dollars and cents, but in customer's good will as well, because every VOGEL closet or hydrant you install means one more satisfied customer.

We'll send you folders and blotters on VOGEL Frost-Proof Closets and Hydrants, imprinted with your name and address. Use them to build up your profits and your list of satisfied customers.

See inside back page for VOGEL Selflush Advertisement

JOSEPH A. VOGEL COMPANY
Wilmington, Del. St. Louis, Mo.

VOGEL PATENTED *Frost-Proof* Products

DOMESTIC ENGINEERING

Plumbing & Heating Contracting and Merchandising

Established 1889

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IN THIS ISSUE

Page

Piping Salt Water from the Atlantic Into Seaside Swimming Pool ... 47
Shop Methods That Save Time and Money ... 53
Priming Water Connections for Pumps. By W. H. Wilson ... 56
A Curious Water Line Experience. By J. H. Walker ... 57
Plumbing and Heating Merchandising: How to Use Customers, Salesmen, Fuel Costs, Testimonials in Making Oil Burner Sales. The Master Salesman ... 59
Contractor Meets New Problem in Heating Aircraft Plants. By Willis Parker ... 67
Use New Joints on Big Pipe Line ... 69
When You Connect Water Closets at Different Levels to the Same Stack, You Meet Some New Problems. By S. M. Barr ... 70
When the Bids Were Opened. Estimates—How to Make Them ... 81
Plumbing Code Tabulations. By R. M. Starbuck, Jr ... 89
Welding of Steel and Wrought Iron Pipe—Specifications and Standards Covering Workmanship, Design and Construction ... 105
Business Conditions in the Plumbers' Brass Goods Industry. By R. L. Ottke ... 118
How I Built My Business. By Bruce Wigle ... 129

Special Departments

Between Ourselves ... 6
Editorials ... 45
Retail Advertising Service ... 78
Supply News—Among Manufacturers, Wholesalers and Salesmen ... 113
Markets—Business Reports from Large Jobbing Centers 139
The Trade—News for Plumbing and Heating Contractors 123
Convention Dates ... 138
Questions and Answers ... 151
Woman's Page ... 158
Plumbing and Heating Patents ... 172
Index to Advertisers ... 176

WOLVERINE

"Tested and Guaranteed"

The "Tested and Guaranteed" tag on all Wolverine Compression Work means to the Master Plumber . . . . .

———the highest quality of material and workmanship.

———the most rigid inspection of all parts.

———factory installation under actual operating conditions.

———33 years of engineering knowledge of the Master Plumber's needs.

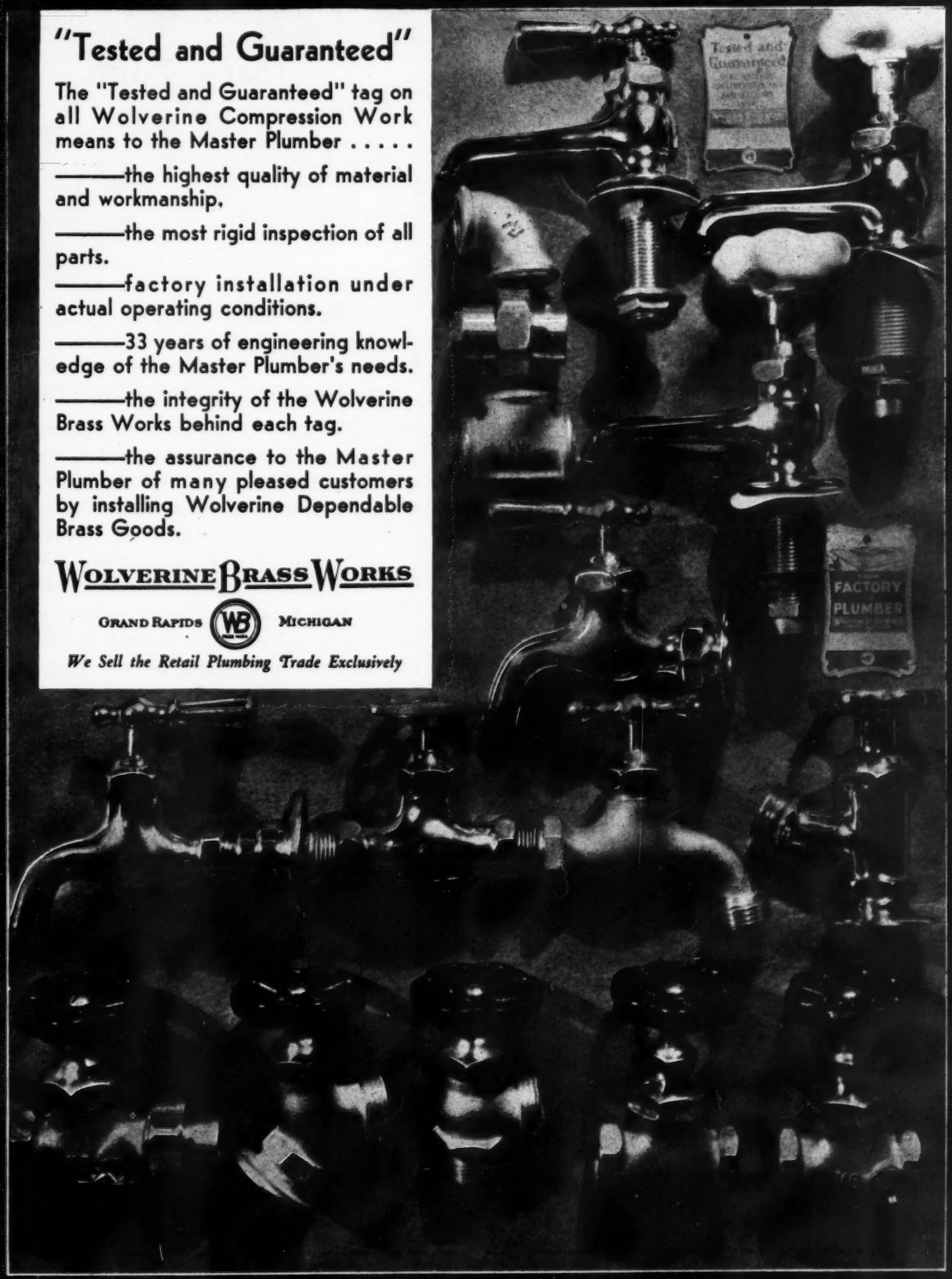
———the integrity of the Wolverine Brass Works behind each tag.

———the assurance to the Master Plumber of many pleased customers by installing Wolverine Dependable Brass Goods.

WOLVERINE BRASS WORKS

GRAND RAPIDS MICHIGAN

We Sell the Retail Plumbing Trade Exclusively



Between Ourselves

• In the Merchandising Section of this issue appears an exceptional story on selling oil burners that readers of *DOMESTIC ENGINEERING* will not want to miss. The heating contractor with whom the article is concerned gives ample proof of the value of satisfying every customer completely. For, it is through these satisfied users that this operator has been able to secure many of his sales; because he has learned how to use customers' testimonials in making oil burner sales.

• The water line, like the stock market, has a way of fluctuating surprisingly—and, as in the case of the stock market, it is often difficult to decide what caused the bullish or bearish movement. And sometimes the glass takes to deceiving ways, falsifying its readings like a peculating cashier. This gives the engineer on the job something to think about and, in this issue, gives our readers something interesting to read about in the article: "A Curious Water Line Experience." Read this article and see if you can match it out of your own experience.

• With the increased popularity of the swimming pool, along with the increased expenditures being made on these pleasure pools, both public and private, a lucrative business has opened for the contractor. Competition has compelled the promoters of commercial or public pools to expend much larger sums than they had ever before felt justified in spending to make their swimming pools as artistic, as sanitary and as modern as possible. Expensive filters and sterilizing devices are installed with high grade pumping equipment for filling the pool and re-circulating the water. State and municipal boards of health have taken a hand, compelling swimming pool operators to maintain their pools in as nearly a sterile condition as present day methods and appliances will accomplish. It is needless to enlarge on what all this spending means to the piping contractor, but read Frederick N. Bolles' article on building a modern swimming pool, in this issue.

Thank You!

• " . . . *I don't believe I ever paid out $2 for which I got value received more than I do from DOMESTIC ENGINEERING.*"—*J. A. Little, Bluffton, Ind.*

Selected from This Issue

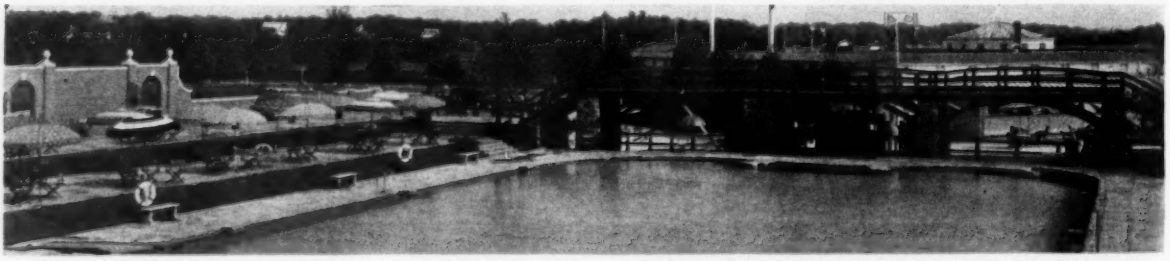
• "*In other words, efficiency in aircraft building, selling and administration is dependent upon proper working temperatures and humidity to an extent only little less than it is dependent upon labor saving machinery and the proper laying out of the production line.*"—*Willis Parker.*

"*General practice throughout the country considers that a top floor water closet or other fixture setting close to the stack does not need a separate vent.*"—*S. M. Barr.*

"*Estimating and sales are so closely related and interwoven that it is almost impossible to consider one without the other, in fact, most sales are based on estimates, and the sale without an estimate . . . is almost unknown.*"—"*When the Bids Were Opened.*"

The man who is so busy that he does not have time to read his trade paper is like the man who was so busy chopping wood that he did not have time to sharpen his axe.

Your Editor



ROUNDED TOP

only one of its many exclusive advantages

THE distinctive rounded top (*patent applied for*) of the Heggie-Simplex Jacketed Boiler appeals instantly to housewives. It eliminates from the basement another place where debris may accumulate. Also it does not collect dust as easily as a flat top.

The finish of this jacket is the same smart French Grey and Black that made the first Heggie-Simplex Jacketed Boiler so popular with women. It is of a special non-chipping baked enamel; lustrous, beautiful, dust-concealing and durable.

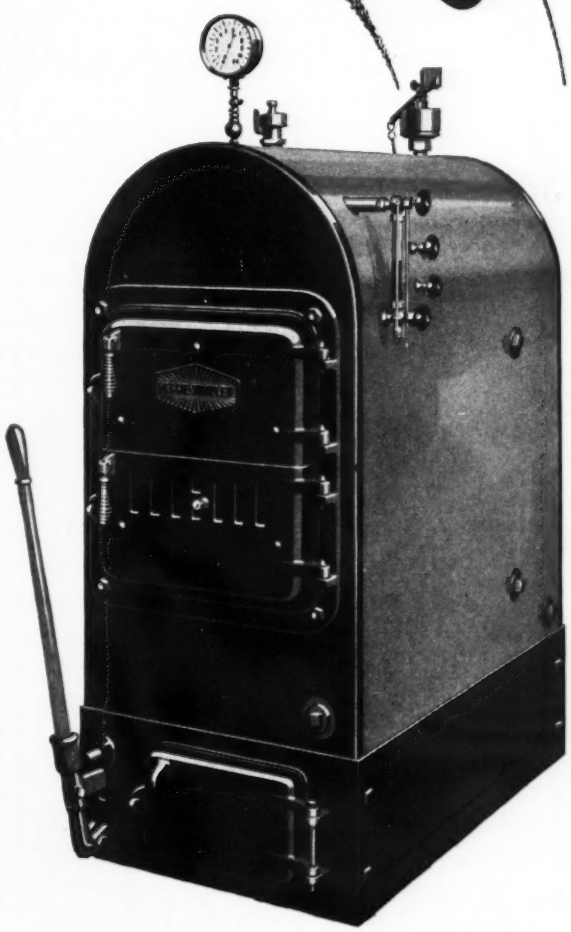
Simplest to install! The boiler, itself, is one complete portable steel unit that goes through any doorway. No sections to join, no packing or cementing! The boiler is made to templates with the flanges of all openings accurately placed with jigs. The steel jacket is die-cut so that its openings are located with equal accuracy. A perfect fit is assured.

The *mineral wool* insulation is already in place as a lining to the jacket—front, back, sides and top. No separate handling, fitting or trimming.

Standard Heggie-Simplex features of design* assure the same continuous economical performance that only the owners of large buildings using large steel boilers could heretofore obtain.

For details write Heggie-Simplex Boiler Co., Joliet, Ill.

MEMBER OF THE STEEL HEATING BOILER INSTITUTE



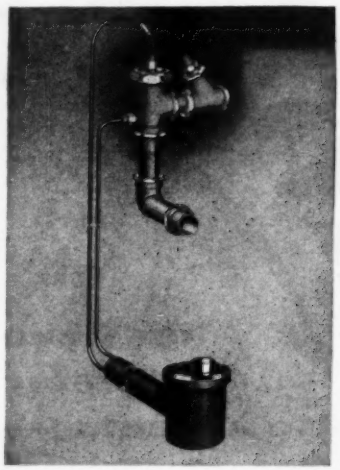
*The spacious combustion chamber in the Heggie-Simplex Jacketed Boiler gives fuel more room to burn. Heating surface in direct contact with the fire on all sides absorbs the heat the instant released. Numerous tubular flues, unrestricted circulation and the jacket's *mineral wool* lining assure complete utilization of heat units. Of welded steel construction, the Heggie-Simplex is crack-proof and leak-proof, assuring freedom from breakdowns.

HEGGIE-SIMPLEX

STEEL HEATING BOILERS

1855 · SEVENTY-FIFTH ANNIVERSARY · 1930

Installing service, dependability, and health protection



Crane Foot Operated Water Controlled Flush Valve. C13052-A

When you install a Crane Water Controlled Flush Valve, you are installing more than a good valve; you are installing, in their fullest measure, these advantages:

Service. The Crane Water Controlled flush valve will give a satisfactory flush on all pressures from 10 to 100 pounds on floor outlet bowls and 15 pounds and up on blow-out wall closets. It can be furnished specially where pressures are lower than ten pounds, but five pounds is the minimum on floor outlet bowls. Longer flushes can be had by holding in an open position.

Dependability: The by-pass in Crane valves is located in the main plunger and travels with the plunger. It is protected by a strainer with approximately 85 to 90 holes, each of which is smaller than the by-pass hole. Its construction and location tend to keep it free from sediment and insure against stoppage of the by-pass. The by-pass disc and strainer are made of white metal.

Health protection. The high lifting plunger (about 3/4 of an inch) provides a large waterway through the valve for operation on low pressures, and ample refill for resealing the trapway and supplying the deep water seal and large water surface which are so necessary for sanitation.

Valves CRANE *Fittings*

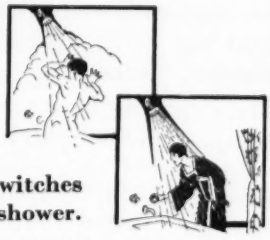
CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVE., CHICAGO
NEW YORK OFFICES: 23 W. 44TH STREET
Branches and Sales Offices in One Hundred and Ninety-six Cities

ALL METAL AUTOMATIC DIVERTER-

no rubber ---------- ---------- no spring

It's in the spout *on* the wall — not *in* the wall. Gravity holds it in the TUB position because the handle outweighs the flapper. When the water is on and the handle is raised, water pressure holds it in the SHOWER position as long as there is water in the riser.

No Scalding No Unexpected Showers



The shower bather first tempers water at the spout, then, by lifting lever on diverter, switches the same water to the shower. *No accidental scalding!*

When water is turned off, the diverter automatically returns to the TUB position. Lever is always down until the user lifts it. *No unexpected showers!*

You'll find other interesting features about the new "Manhattan" bath fixture, Add-a-Shower, Classic Sink Faucets, etc., in our new 76-page catalog. Write today.

The
CHICAGO FAUCET COMPANY
2700-22 N. Crawford Ave., Chicago

The MANHATTAN

I'd like a copy of your new catalog —also a tip on the "Manhattan."

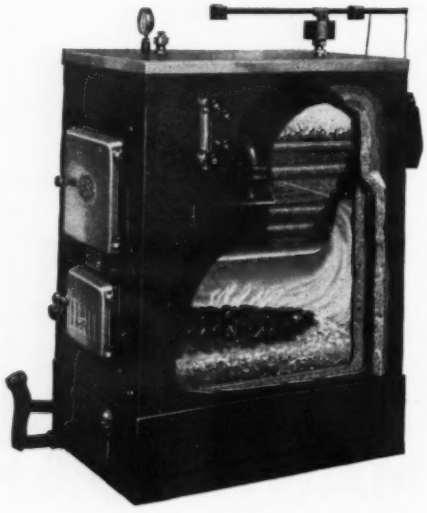
Name.....

Address.....

CHICAGO FAUCETS

Skyscraper efficiency in home heating

Pacific RED CREST



GREAT modern skyscraper buildings brought new and far more exacting requirements for heating engineers to solve. Tenants demanded ideal comfort. Profit margins called for strictest economy. Failure or waste in heating simply could not be tolerated.

To completely meet these demands, Pacific Welded Steel Boilers were developed. Always dependable, supplying heat always adequate, at the lowest cost for fuel, they have proved their merit in hundreds of the largest and finest buildings in America.

Now, the same high efficiency at low cost is offered to homes by the new Pacific *Red Crest*. In it is found the durable welded steel construction, the scientific heat engineering, that has given leadership to Pacific boilers for larger buildings.

Added to these is the beauty of a handsome jacket of red and blue enamel on steel, a fuel saving blanket of thick rock wool insulation, and the compactness required in a home heating boiler.

Here, in brief, is a boiler that brings skyscraper efficiency to home heating.

PACIFIC STEEL BOILER CORPORATION
General Offices: Detroit, Michigan
Factories: Waukegan, Ill.; Bristol, Pa.
Sales Offices in 58 Cities
Division of the United States Radiator Corp., Detroit, Mich.

Pacific Boilers and PACIFIC *Capitol Radiators*
make a logical combination

PACIFIC

STEEL HEATING BOILERS

THE OLD HAUNTED HOUSE ON THE HILL

HAS NOTHING ON THE VACANT APARTMENTS ON THE DRIVE

No one wants to live where there's noise, whether the noise is from broken shutters, squeaky ghosts or leaky ball cocks.

Builders are coming to know that "that noisy tank in the bath room" is too much for their tenants—they won't stay, no matter how nice the rest of the apartment may be.

When you tell a builder about Sherwoods, he'll buy them because he knows that a ball cock that closes against any city water pressure without whistling or gurgling is not going to make a big racket and drive his tenants out.

Sherwood Ball Cocks have been installed in many of the country's finest apartments—and their cost is so reasonable that they can be installed in the most modest building.

They're available in any size shank you require at your jobber's.

Alexoid

Where water conditions are below normal and where they take a toll in wear from ball cocks, install the Sherwood Red Band (Alexoid) Ball Cock. It has been designed to meet the worst conditions in the best manner and is but slightly higher in price.

SHERWOOD BRASS WORKS

Jefferson and Mt. Elliott Aves.

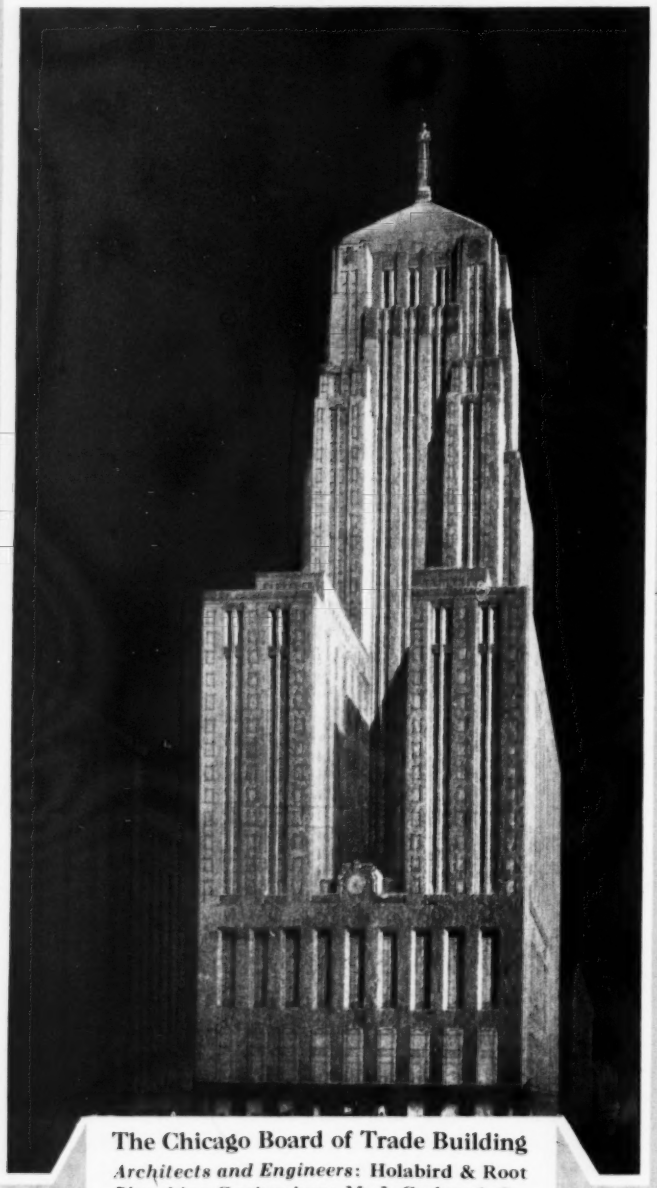
DETROIT MICHIGAN

REPRESENTATIVES

J. A. Riordan Co. (Inc.), 1600 E. 7th St., Los Angeles
303 Colman Bldg., Seattle
E. S. Thompson, 2401 Chestnut St., Philadelphia
Fred G. Hoffman, 831 Edgewood Ave., Trenton, N. J.
Fred S. Wilsey, Plymouth Bldg., Minneapolis

SHERWOOD Ball Cocks

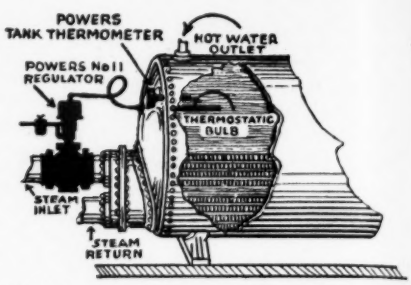
TANK REGULATORS



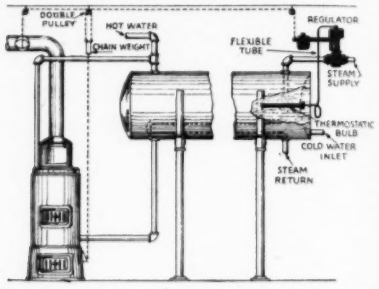
The Chicago Board of Trade Building

Architects and Engineers: **Holabird & Root**
Plumbing Contractors: **M. J. Corboy & Co.**

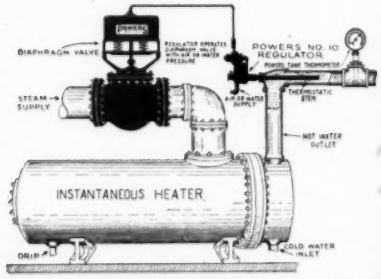
The hot water heaters in this prominent building are controlled by Powers Tank Regulators. Their first cost is often higher, but their many years of ACCURATE and DEPENDABLE service make them cost much less in the end.



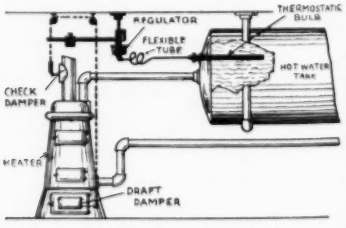
The Powers No. 11 Regulator applied to steam heated hot water tank. Self operating—accurate and durable. *Write for Bulletin No. 2035.*



The Powers No. 12 Regulator for controlling steam coil and auxiliary heater. *Write for Bulletin No. 2035.*



The Powers No. 10 Regulator operated by either compressed air or water pressure for control of large valves, swimming pool heaters, etc. *Write for Bulletin No. 2035.*



The Powers No. 13 Regulator for hot water tank heaters and garbage burners. *Write for Bulletin No. 2035.*

THE POWERS REGULATOR COMPANY

35 years of specialization in temperature control

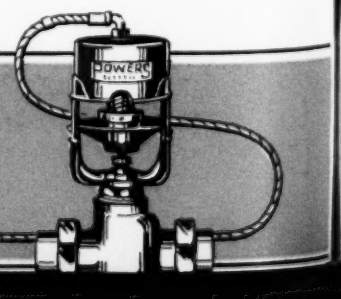
General Eastern Office
137 East 46th St., New York City

General Offices and Factory
2716 Greenview Ave., Chicago, Ill.

Canadian Powers Regulator Co., Ltd.
106 Lombard St., Toronto, Ont.

Offices in 35 other cities—See your telephone directory

POWERS



THE CELEBRATED SKIP TOOTH DIE
(Genuine Nye)
REG. U. S. PAT. OFFICE

A Letter from Harry G. Nye

July 26, 1930

To the Plumbers and Steamfitters of the U. S. A.

WHO'S FLAMING NOW?

Fellow Citizens:-

A woman in Chicago has just had triplets, all boys, and is looking for names for them. I suggest that she name them Faith, Hope and Charity--faith that one of them will turn out all right, hope that two of them will, and charity if none of them does.

Young folks have a hard time keeping out of trouble these days. If a boy has a hip-flask, likely it is full of father's gin, and daughter daubs her cheeks with mother's rouge. Mathematically speaking, perhaps if youth is a problem it is because old age is no example.

We yelp a lot about youth flaming and flunking, but you will find more gray hairs in a cabaret than you will on a twenty-year-old-mule. The great question now isn't "Where is my wandering boy tonight?" but "I wonder where Ma is?"

In the old days some good woman used to put her shawl over her head and go down after midnight and pull Sonny out of some place, but now she has to go and get Grandpa. People used to sow their wild oats in their youth, but now they raise two crops.

So I am not worried as much about the Chicago woman's three boys as I am about their old man. I am afraid he isn't at home walking the floor with the triplets, but out somewhere tripping the floor with the blondes and the brunettes.

After all, where the old horse goes the new wagon follows. To reform youth the place to begin is the old man. And that reminds me: men may change, but Nye dies are as good as ever. It's a wise father who says, "Son, when you go into business, don't waste your time and money on cheap tools".

Faithfully yours,

Harry G. Nye

Patents Pending
"THE LIGHTWEIGHT CHAMPION"
Threads—Cuts Off and Reams
Capacity ½ to 2 Inches
Furnished with either A. C. Motor, Universal Motor or Gasoline Engine

OTHERWISE KNOWN AS
THE NYE TOOL & MACHINE WORKS
4120-30 Fullerton Avenue :: Chicago

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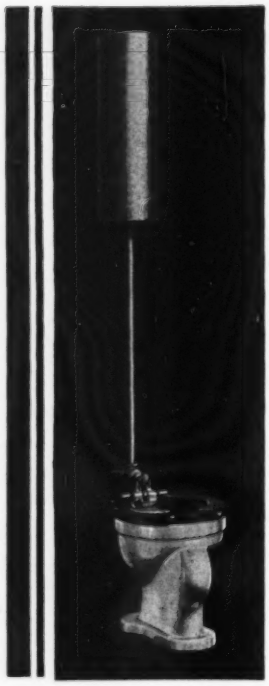
THE CELEBRATED SKIP TOOTH DIE
(Genuine Nye)
REG. U. S. PAT. OFFICE

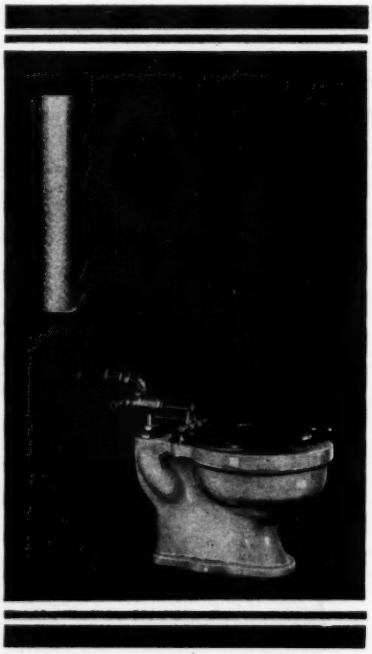
For . . . Schools . . . Factories . . . Institutions . . . Public Buildings—

Haas Automatic Pressure Tank Closets



Through Your Jobber

Hundreds of schools, factories, public buildings and institutions have been equipped with Haas Automatic Pressure Tank Closets. By specifying "Haas" on their contract quotations the plumbers who installed these jobs realized a worth-while profit—and in turn gave customers a value unsurpassed in the trade.



Bowls From Your Own Stock or Nearest Supply Can Be Used If Needed

Haas Automatic Pressure Tank Closets are equipped with the Haas "Master" seat action valve, which can be installed over staple earthenware, either siphon jet or washdown. Bowls from your own stock, or from nearest source of supply can be used. The "Master" valve can also be installed on bowls already in use.

Wide Range of Types to Fit Every Need

Haas Automatic Pressure Tank Closets are available in an unusually wide range of types and styles. One among these is sure to suit just that contract you want to clinch. If you are not already familiar with this line, your jobber can supply literature and prices—and Haas guarantees the rest.

THE PHILIP HAAS CO., Inc.
Dayton, Ohio

Haas

Burnham Boilers

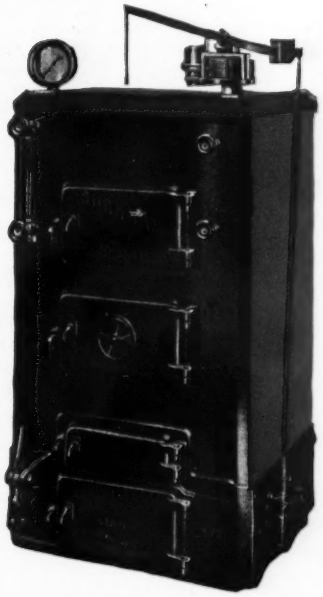
On A Thrift Basis The Jacket Justifies Itself to Your Customers

YOU know how folks are looking for more than their money's worth these days. You've got to give 'em a dollars worth for every dollar, and then some.

On that score, you can point out to your customers what a money saving feature the Burnham jacket really is. It gives complete insulation for top, sides and back of the boiler. It will last indefinitely, is not easily marred, and it's lined with asbestos sheets that won't wad down or hold moisture.

A large part of the cost of jacketing is offset by the usual cost of asbestos covering, which cannot give the keen satisfaction a handsome jacket always gives.

Be ready with that clincher, when the cost of jacketing comes up.



BURNHAM
Jacketed In Color

Inside its sleek steel jacket it is a full grown Burnham water tube type boiler, with the Burnham long fire travel that makes its short coal bills.

Burnham Boiler Corporation

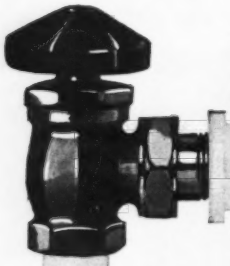
IRVINGTON, N. Y.

Representatives in all principal cities of the United States and Canada

MARSH

presents truly modern heating...

Marsh Weather Compensating System of heating



Advanced engineering skill and perfect mechanical equipment have produced the MARSH WEATHER COMPENSATING SYSTEM of heating—at once a system, a service and a warranty of reduced operating costs.

The MARSH WEATHER COMPENSATING SYSTEM of heating automatically meets the requirements of variable outside weather conditions with the greatest efficiency and economy. Specially designed compensating controls enable it to deliver only a sufficient quantity of heat to maintain a constant, comfortable temperature. A very great fuel saving is effected by placing the full demand upon the heating system *only* when its maximum output is needed. In spring, fall and winter, room temperatures remain constant.

A Guarantee of Economy

Installed in a new building, the cost of the MARSH WEATHER COMPENSATING SYSTEM of heating is approximately 4% to 6% above that of the standard return line vacuum system. Operating costs are so reduced that a return of from 50% to 100% on the additional investment is made each year. Installation in existing structures is equally simple and merely necessitates the replacement of certain of the old style valves and traps with modern, MARSH System Units.

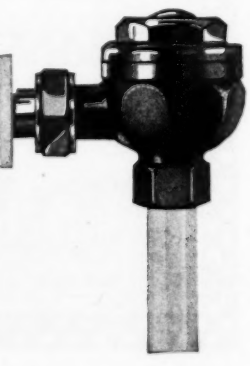
The MARSH WEATHER COMPENSATING SYSTEM of heating pays for itself *out of savings*—THEN DIVIDENDS. Write for booklet.

JAS. P. MARSH & CO.

(DIVISION OF COMMERCIAL INSTRUMENT CORPORATION)

Home Office: 2073 Southport Ave.
Chicago, Illinois

551 Fifth Ave., New York City Bendix Bldg., Los Angeles
2539 Pennsylvania Ave., N. W., Washington, D. C.
Other offices in principal cities



BUILDING PROGRESS ENDORSES REPUBLIC

Bigger and bigger grow our modern business structures . . . higher, more expansive. And the larger the building, the more extensive the piping systems required . . . the more exacting the service demands . . . the greater the need for unfailing pipe. Republic Steel Pipe has once again been selected for the important systems in one of the most recent of modern office buildings—The Midland Bank Building in Cleveland.

REPUBLIC STEEL PIPE

REPUBLIC STEEL CORPORATION, YOUNGSTOWN, OHIO.

No. 397

Ask AMERICAN BRASS GOODS Users

THERE'S one way to really check up on just how good a thing is: ask someone who uses it. That's what we invite you to do about American Brass Goods.

You'll find it in many of the best hotels, hospitals, apartments, commercial and industrial structures; you'll find that the architects who specified it for their work many years ago, continue to specify it; you'll find, too, that contractors who installed it years ago are still installing it.

Ask them or ask the owners of the buildings which are American equipped. They'll bear out our statements of superior design, workmanship, ease of installation and trouble-free operation. Your jobber will tell you about American Brass Goods, too.

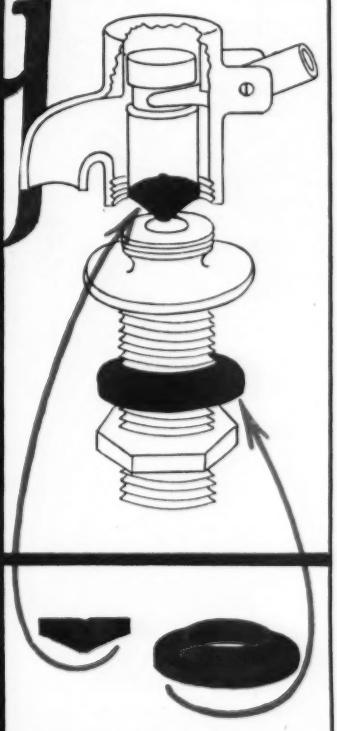
The Figure 397 and 399 Anti-Syphon Traps illustrated are made of one piece all cast brass body.

No. 399

AMERICAN SANITARY MFG. CO.

ABINGDON, ILLINOIS

Perfectly Equipped fixtures

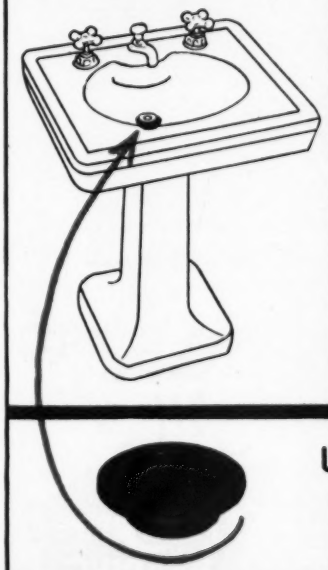


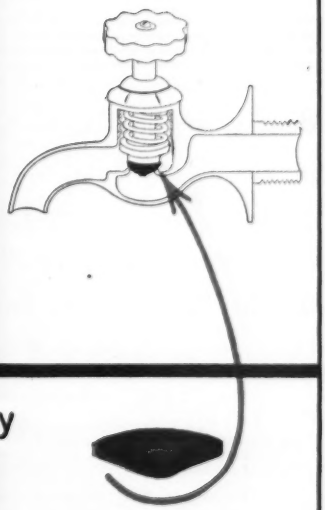
When you order new fixtures insist that they be equipped with "U. S." Royal Maroon Plumbing Specialties.

Today many homes have water meters and leaking valves and faucets are a source of expense. Customers immediately think that faulty installation is the cause. With "U. S." Royal Maroon Products installed throughout, your reputation is safe. Good will is built for future business.

"U. S." Royal Maroon Line Products eliminate leaks and positively give greater extension of life of fixtures in service.

"U. S." Royal Maroon Line is sold through selected supply houses.





Catalog sent on request

United States US Rubber Company

TRADE MARK

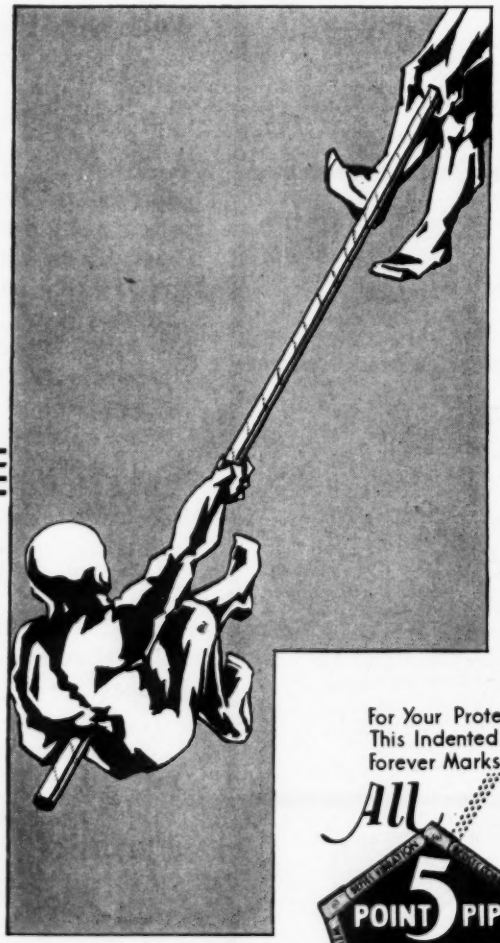
Executive Offices:

1790 Broadway, New York City

"U.S." ROYAL MAROON LINE

of Plumbers' Rubber Specialties

Combined with its great resistance to rust, this ability to stand up under hard knocks gives Reading 5-Point a life at least twice as long as that of ordinary pipe! Remember that Genuine Puddled Wrought Iron Pipe is the time-tested pipe—the Reading name and indented spiral assure proved performance!



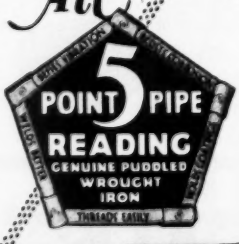
Bumps, jars and rough handling mean little in the life of Reading 5-Point Pipe—the original, Genuine Puddled Wrought Iron Pipe. Thousands of installations have proved that its fibrous, rope-like structure means immunity to shock and strain.

TO GET THE MAXIMUM SERVICE from rust-resisting Reading 5-Point Pipe, use only Reading 5-Point Nipples. These nipples are also made of Genuine *Puddled* Wrought Iron, the moderately priced pipe material with the record of proved endurance! To identify Reading 5-Point Nipples, look for the indented band midway between the threaded portions.

READING IRON COMPANY, Reading, Pennsylvania

Use only Reading 5-Point Nipples with Reading 5-Point Pipe—you'll know them by the indented spiral band

For Your Protection, This Indented Spiral Forever Marks All



GENUINE PUDDLED WROUGHT IRON
READING PIPE
DIAMETERS RANGING FROM ⅛ TO 20 INCHES

Science and Invention Have Never Found a Satisfactory Substitute for Genuine Puddled Wrought Iron

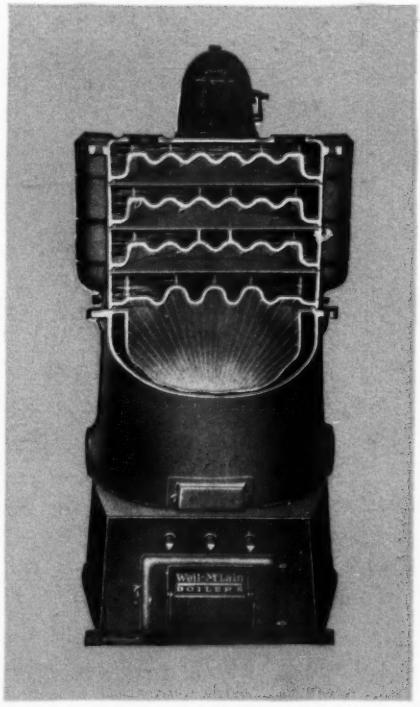
FAMOUS FIGHTERS

ATTILA

(King of the Huns)

"Attila the Hun" made himself complete master of Central Europe within the first eight years of his reign, which started in 433 A. D. The sound of his name brought fear to people outside of his empire but he was strongly supported by his own people. For the next twenty years he ruled all races from the Caspian to the Rhine. In 451, he led his many-nationed army over the Rhine and laid siege to the city of Orleans, which he later abandoned when a great Romano-Gothic army was seen on the horizon. The battle which followed was one of the great battles of the world. He next set out to conquer Italy, but he finally turned back at the entreaty of the Pope. Death came suddenly to Attila in 453, following a huge banquet in celebration of his wedding. He was never conquered.

Let Weil-McLain *fighting features* sell boilers for you



Exclusive features built into all Weil-McLain Boilers enable them to fight fuel waste and deliver more heat. These features are easily demonstrated to home owners. Because of this, they are good business builders and good boilers for you to handle.

Fuel-saving corrugations like this ∿∿∿

The Weil-McLain Round Boiler, for example, delivers more heat and saves fuel, because all the vital heat-absorbing surfaces are corrugated like this ∿∿∿ instead of flat like this ———. It is easy to show that the wavy line crowds 30 to 40 per cent more heating surface into the same space.

Balanced back-and-forth fire travel

More heat is actually utilized in Weil-McLain Boilers because Weil-McLain fire travel is not only backward and forward, but it is *balanced*. Variations in the rate at which boilers operate, due to varying heat demands, do not alter the long, balanced, back-and-forth flow of gases through the flues.

In the complete line of Weil-McLain Boilers you will find scientific principles of design that enable these boilers to fight fuel waste and deliver more heat. The line includes Round Type, Jacketed, Square, Self-feed and Smokeless Boilers. Also Weil-McLain "Cameo" Radiators.

WEIL-McLAIN COMPANY, General Office: Chicago
Boiler Plant and Offices: Michigan City, Ind.
Radiator Plant and Offices: Erie, Pa.

Jobbing Distributors with local stocks in most jobbing centers

CAMEO

RADIATORS

Weil-McLain
SCIENTIFIC COMBUSTION
BOILERS
©1930, W.-McL.

fight fuel waste and deliver more heat

The Names of Your AUGUST Prospects

Are on LAST WINTER'S Boiler, Fuel and Repair Bills

A certain number of people had trouble with their boilers last winter, or the winter before, and called you in for repairs, didn't they? In some cases you sized up the trouble as a crying need for a new boiler. Dig up the names of those people from your repair bills and go call on them. An installation they couldn't make in the dead of winter, they can most opportunely make right now.

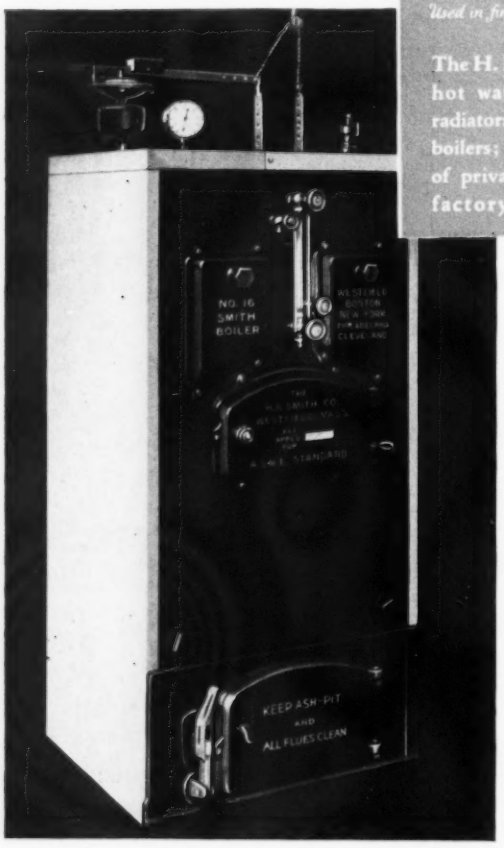
Recall their troubles a little bit and say you've come to tell them how to make next winter trouble-proof.

Tell them the secret of comfortable economical heating is in having an *efficient* boiler. That the efficiency of a boiler chiefly depends upon having enough Fire Surface. That the New Smith "16" has more Fire Surface than any other boiler made of the same grate area, and twice as much as some of them. That it gives small-to-medium homes the same luxurious heating and the same welcome economy that the larger H. B. Smith Boilers (Mills "24," "34" and "44") have given large homes and mansions for over fifty years.

That's the skeleton of your story. To refresh your mind on the details, send for a copy of our new booklet, "The Smith 16." It is free. Address, The H. B. Smith Co., Dept. A-76, Westfield, Mass.

THE H·B· SMITH
BOILERS & RADIATORS
Used in fine homes and buildings since 1860

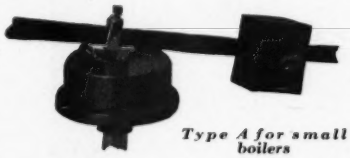
The H. B. Smith Boilers for steam, hot water and vapor heating; radiators; and hot water supply boilers; for every type and size of private home, office building, factory and public building.



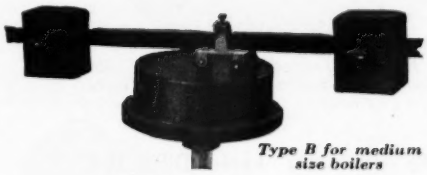
SALES OFFICES AND WAREHOUSES:
NEW YORK: 10 East 41st Street
PHILADELPHIA: 2209 Chestnut Street
BOSTON: 640 Main Street, Cambridge
CLEVELAND
WESTFIELD, MASS.

The Operating Efficiency *of a* Good Heating System *is largely a matter of control*

METAPHRAM Damper Regulators

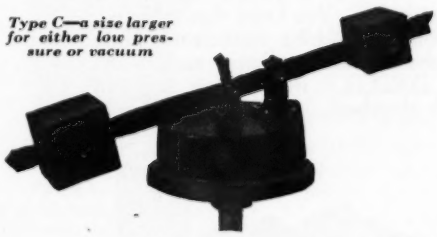


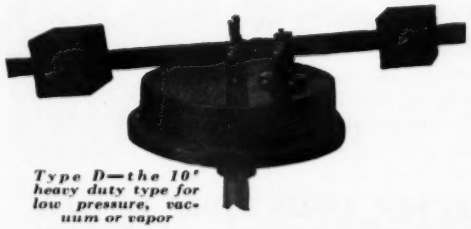
Type A for small boilers



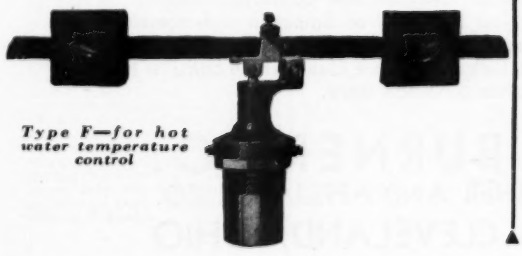
Type B for medium size boilers

Type C—a size larger for either low pressure or vacuum





Type D—the 10" heavy duty type for low pressure, vacuum or vapor



Type F—for hot water temperature control

The best heating system you ever installed won't give continued heat satisfaction if the pressure or temperature delivered by the boiler is constantly fluctuating, or if damper control is a manual operation.

Fluctuations in heat output are eliminated by *good* damper control; but a good damper regulator must be capable of

(1) *Replacing manual control of draft and check dampers between periods of firing.*

(2) *Maintaining a rate of combustion to meet heating requirements.*

(3) *Preventing excessive "lag" or "over-runs" in boiler delivery.*

Every requirement for good damper control on hand fired boilers is met by Metaphram Damper Regulators.

Long life, continued efficiency, extreme sensitivity, and *sufficient power* to raise and lower draft and check dampers on any low pressure domestic heating boiler you may install.

Descriptive bulletins will be mailed on request.

NATIONAL

National Systems of Heat Regulation and Humidity Control, Metaphram Dampers, Metaphram Meters, Industrial Thermostatic Devices, A-Jacks Steam Damper Regulator for high pressure boilers, Metaphram Damper Regulators for domestic steam, vapor, vacuum and hot water heating boilers, Metaphram Furnace Regulators.

METAPHRAM

NATIONAL REGULATOR CO., 2317 Knox Ave., Chicago

Please send us

☐ Bulletin F-100—Type F Metaphram Damper Regulator for hot water boilers.

☐ Bulletin LP-100—Metaphram Damper Regulators for low pressure boilers.

Name.....

Address.....

Town..... State.....

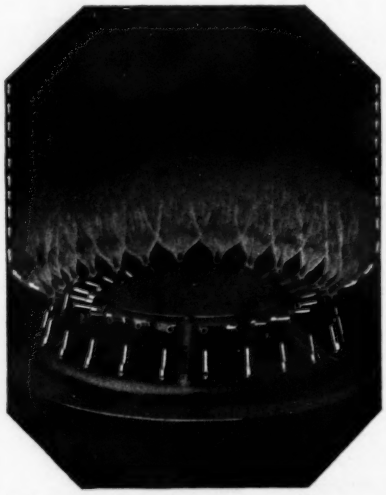
THE DUAL REQUIREMENT OF EFFICIENT GAS HEATING

MAXIMUM HEAT

→ ← *Indicates where necessary air is taken in to mix with gas to develop perfect combustion at varying gas pressures.*

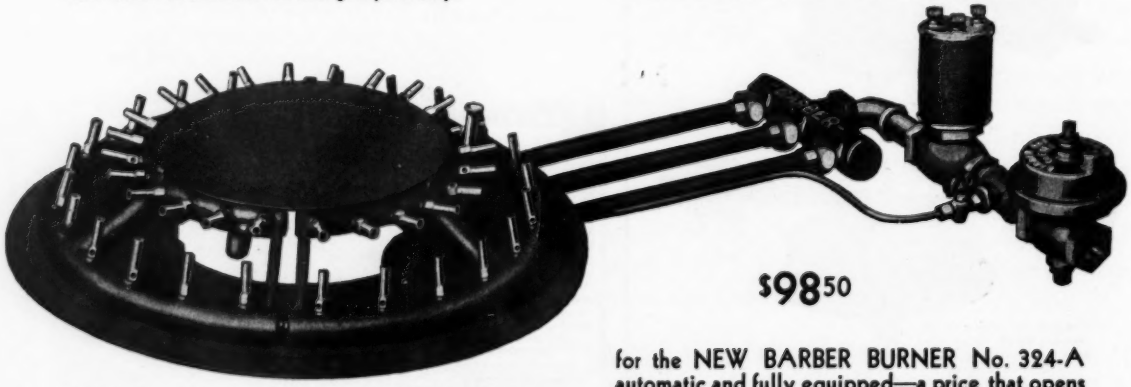
THE perfect combustion or burning of gas is dependent upon its union with a proper amount of oxygen as may be extracted from the air. The BARBER PATENTED JET PRINCIPLE accomplishes perfect combustion, liberating all the heat contained in the gas you buy.

PROPERLY APPLIED



↑ ↑ *Barber Patented "Scrubbing" flame application to heater side walls—direct —no loss of heat.*

YOU put a tea kettle DIRECTLY above the gas flame if you wish it to boil quickly. You know that reflecting heat on it would be inefficient. Note that the Barber Gas Burner applies the heat DIRECTLY where it is required and is absorbed. » » » » »



$98.50

BARBER CONVERSION GAS BURNERS are made for all styles and sizes of furnaces, boilers and heating appliances—Complete data and latest prices are given in our new Catalog No. 30.

for the NEW BARBER BURNER No. 324-A automatic and fully equipped—a price that opens up an immense new conversion market. It will allow hundreds of homes in your community to heat economically with gas. Write for our new sales folio, "More Gas", which contains the complete BARBER story.

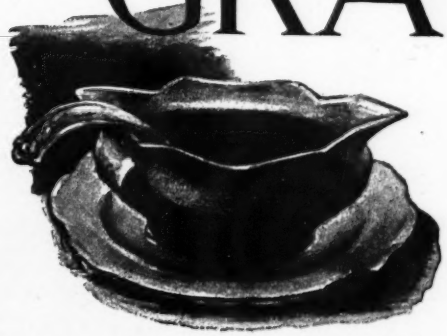
THE BARBER GAS BURNER CO.

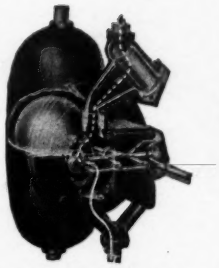
FORMERLY THE CLEVELAND GAS BURNER AND APPLIANCE CO.

3702 SUPERIOR AVENUE « » CLEVELAND, OHIO

Along with the meat and potatoes:—

GRAVY





for Medium & Large Boilers
The McDonnell & Miller
No. 28
Self-Cleaning Duplex Feeder. The feeder that set the standard of duplex feeder quality.

for Process Boilers
The McDonnell & Miller
No. 29 Single Valve Feeder
The ideal feeder for all boilers where condensation is not returned or where boilers are operated under a vacuum.

for Small Boilers
The McDonnell No. 30
Safety Feeder
This newest addition to the McDonnell & Miller line answers the demand for a quality feeder at a price low enough to justify its installation on small boilers. As a result, it more than doubles the field for feeder installations. Unlike low water cut-offs, which simply stop the oil burner or gas burner, the No. 30 Safety feeder restores the boiler water line to a safe level without shutting down the heating system. Every small oil—or gas-fired job should have a McDonnell Safety Feeder.

THE big boiler job may be necessary to earn your meat and potatoes—but how about the "gravy"? The "gravy" season is here. How much you will get out of it depends on how carefully you plan—*now*—and how hard you work in carrying your plan clear through.

If there is ever a time that the McDonnell & Miller proposition deserves consideration it is *now.*

A year ago we would not have made as vigorous statements as we now make. But today we have records to back up our statements—long lists of repeat orders from heating contractors—letter after letter containing the most spontaneous endorsements.

These orders and letters come from the highest type of contractors—the type of men who would not praise a product simply because they have made money out of it. Their praise is based squarely on the fact that boiler feeders are essential to every type of boiler and that McDonnell & Miller quality makes selling easy.

Yes, the "gravy" of McDonnell & Miller sales is good honestly earned "gravy" that you can enjoy. Your customer looks to you for advice and counsel—and there is no better advice that you can give him than to urge that he install a feeder to protect his investment.

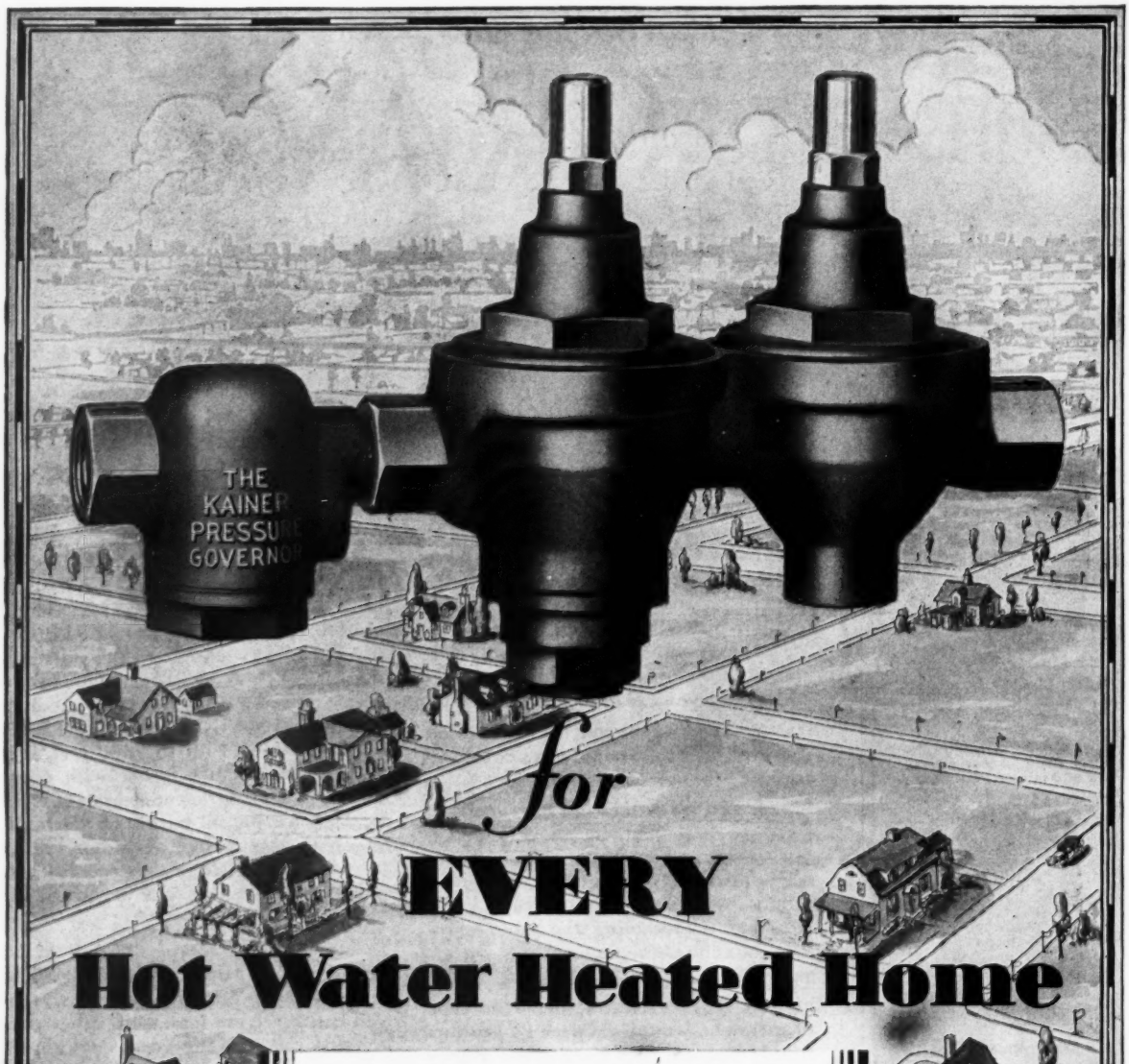
Note that the McDonnell & Miller line of feeders now covers all service and price conditions. The new McDonnell No. 30 Safety Feeder, described opposite, practically doubles your possibilities for feeder sales. With the No. 28 Duplex Feeder for large and medium boilers and the No. 30 Safety Feeder for small boilers up to 2000 feet, it is possible to install a feeder with every steam, vapor, or vacuum system. Particularly for the oil burner or gas burner job the McDonnell & Miller Feeder offers the only *logical* protection. It clinches the convenience argument for automatic firing!

Surely you can't escape the pull of the McDonnell & Miller proposition. The coupon brings facts. Mail it now so that you can share the feast with other contractors through the good days ahead.

McDONNELL & MILLER
400 N. MICHIGAN AVENUE, CHICAGO
Eastern Office: Grand Central Terminal, New York, N.Y.

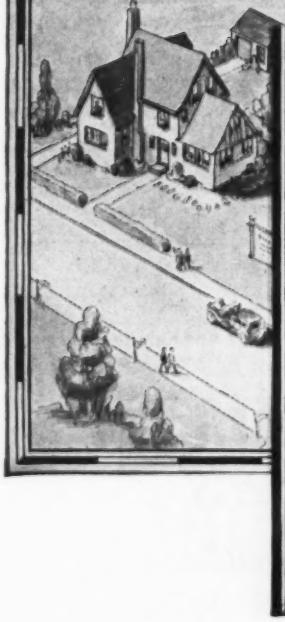
McDONNELL & MILLER, DE-7-30
400 N. MICHIGAN AVENUE, CHICAGO
Please send facts about your proposition to:
Business .....
Individual .....
Street and No. .....
City and State .....

McDONNELL & MILLER
Boiler Feeders
"Doing one thing well"



for

EVERY Hot Water Heated Home

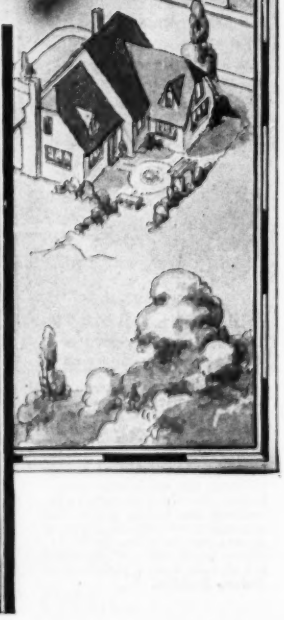


The KAINER *PRESSURE GOVERNOR*

A wide market awaits the alert heating and plumbing contractor who handles the KAINER Pressure Governor—a quick selling, easily installed specialty that allows a generous margin of profit on every job.

The many mechanical advantages and sound sales points of the KAINER Governor meet with an instant response from prospects everywhere.

See your Jobber or Write Today for full information.



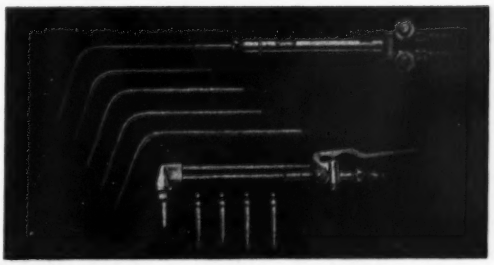
KAINER & COMPANY
CHICAGO
761-771 MATHER STREET
Manufacturers

Welded Piping—

Permanent
Leak-free
Economical

How many piping jobs have you had in the last year where welding would have been the easier method of installation and given the most lasting satisfaction?

If you don't know, ask any Airco office about the possibilities of an Airco-Davis-Bournonville welding torch and cutting attachment (as illustrated) with accessory equipment and Airco Oxygen and Acetylene.



Airco-D-B Welding Torch with Cutting Attachment

AIR REDUCTION SALES COMPANY

Lincoln Bldg., East 42nd Street NEW YORK CITY

Airco Oxygen—Airco Acetylene—Airco-National Carbide—Airco-Davis-Bournonville Welding and Cutting Apparatus—Supplies

90 Plants ***115 Distributing Stations***

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Wheeling

30% saving in steam consumption by comparison with conventional vacuum systems is a reasonable expectation with the Webster MODERATOR System of Steam Heating..."Controlled-by-the-Weather." Particularly suited to modern office and loft buildings requiring 10,000 sq. ft. or more of direct radiation. For proof based on two complete seasons of operation, write Warren Webster & Company, Camden, New Jersey.

a mod-4

WEBSTER
MODERATOR
SYSTEM
OF STEAM HEATING
"Controlled by the weather"

Paragon BALL COCKS

Fig. D 511
(Offset Model)

rest firmly on their reputation

9 PARAGON POINTS

Renewable Crome-Plated Bronze Seat, easily changed without disconnecting supply pipe.

Wing-nut makes this repair possible with only a pair of pliers.

High copper content Red Metal Castings.

Long-wearing Gum Seat Washer.

Excellent Felt Washer instead of leather.

Flexible Lead Refill Tube, corrosion-proof.

Compound Lever action.

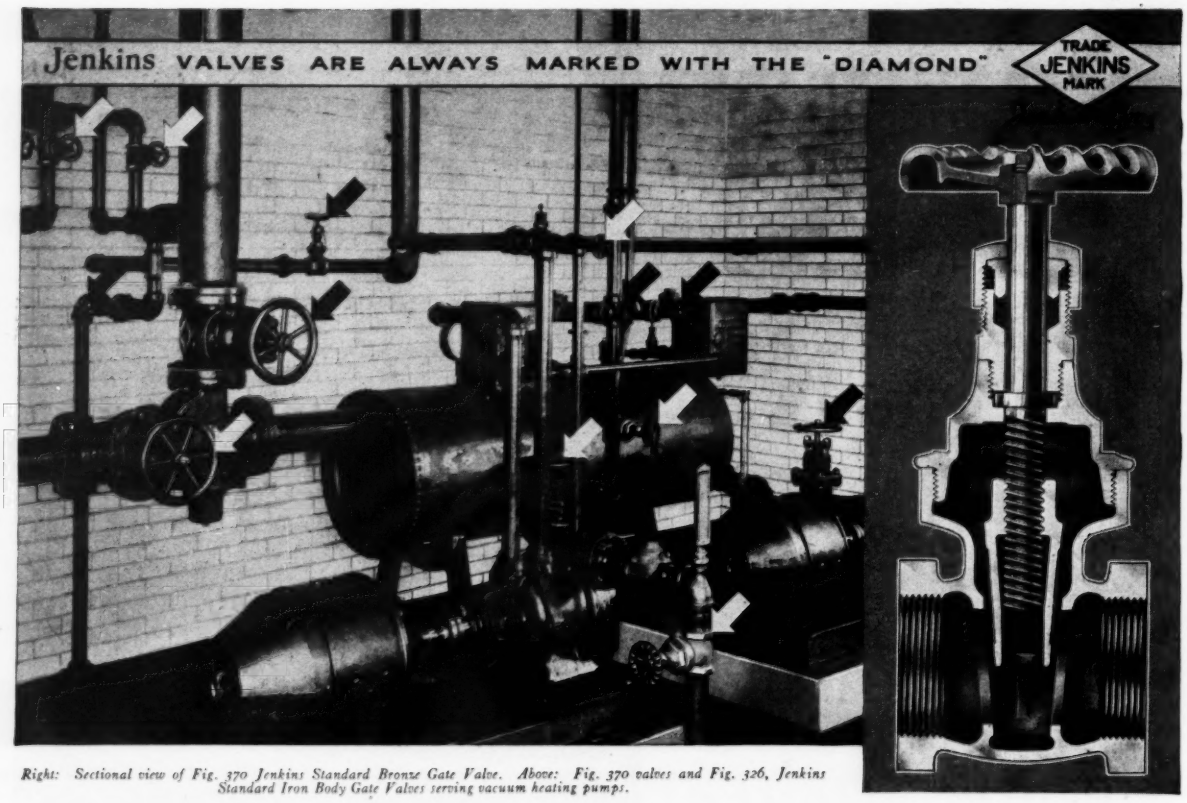
Practical Freedom from Noise.

Special Offset model for replacements in tanks where supply is close to corner.

PARAGON'S reputation for float valve superiority is no advertising fiction. It stands squarely on a foundation of fact—it is based on the Nine Paragon Points here summarized for you, and it is borne out by Paragon's exceptional 20-year record. The lesson from that open book is plain—Paragon is *the* accepted word in fine plumbing practice.

Standard or offset models. Have a look at the Paragon, mounted on the new display stand as pictured above, next time you call at your wholesaler's.

CENTRAL
BRASS MFG. CO.
CLEVELAND OHIO.



Right: Sectional view of Fig. 370 Jenkins Standard Bronze Gate Valve. Above: Fig. 370 valves and Fig. 326, Jenkins Standard Iron Body Gate Valves serving vacuum heating pumps.

For quick, time-saving installation

For the contractor, as well as the building owner, there are advantages in installing Jenkins Valves.

Not only are Jenkins made to yield the owner the maximum of efficient low-cost valve performance, but they are made also for quick, time-saving installation.

Fitters like to work with these sturdy, precision threaded valves. Jenkins go in easily. And the finished job satisfies both the contractor and the owner.

Jenkins are available in bronze or iron for practically every heating requirement. Obtainable through supply houses.

JENKINS BROS.

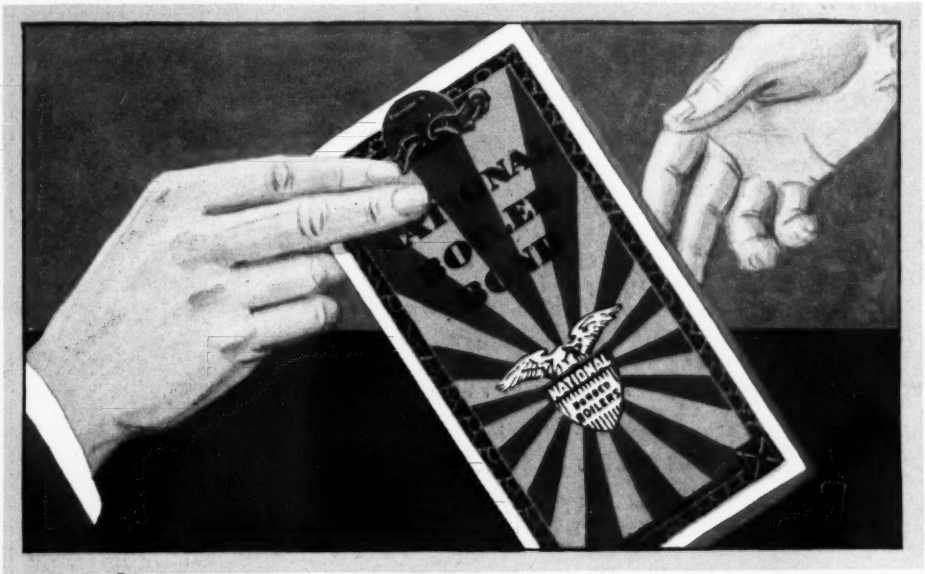
80 White Street, New York, N. Y. | 133 No. Seventh St., Philadelphia, Pa. | 524 Atlantic Ave., Boston, Mass. | 646 Washington Blvd., Chicago, Ill. | 1121 No. San Jacinto, Houston, Texas

JENKINS BROS., Limited, Montreal, Canada; London, England
Factories: Bridgeport, Conn., Elizabeth N. J.; Montreal, Canada

Jenkins
VALVES
Since 1864

don't sell cast iron

sell Made-to-Measure Warmth



When HE'S OPEN TO CONVICTION ‹‹‹‹‹‹‹‹‹ CLOSE HIM WITH CONVICTION

All lingering doubts in the prospect's mind are banished, when you show him the National Boiler Bond . . . Issued by a $39,000,000 corporation, this bond not only guarantees workmanship, material and design, BUT MOST IMPORTANT OF ALL SPECIFIES AND GUARANTEES BOILER PERFORMANCE. It establishes an immediate conviction of quality, carries assurance of satisfaction.

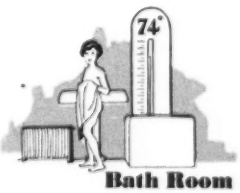
The National *Made-to-Measure* idea has taken the stress off price, put it on performance. It has taken the stress off *equipment*, put it on a *system*, expertly and scientifically installed. It has changed the fitter, in the public mind, from a mechanic to an expert specialist.

You close more sales, make more profit with less employed working capital, through the National Protective Payment Plan. It gives partial payment to your customers—complete payment to you.

The Bond convinces prospects for National Boilers—a trial convinces fitters of the soundness and value of the National 1930 Sales and Advertising plans. In justice to yourself, you should know about them; they mean better business for you.

Bed Room

Grandma's Room



Bath Room

Living Room

NATIONAL RADIATOR CORPORATION
JOHNSTOWN, PENNSYLVANIA

NATIONAL
Made-to-Measure HEATING SYSTEMS

Copyright 1930—Nat. Rad. Corp.

LEND US YOUR EAR

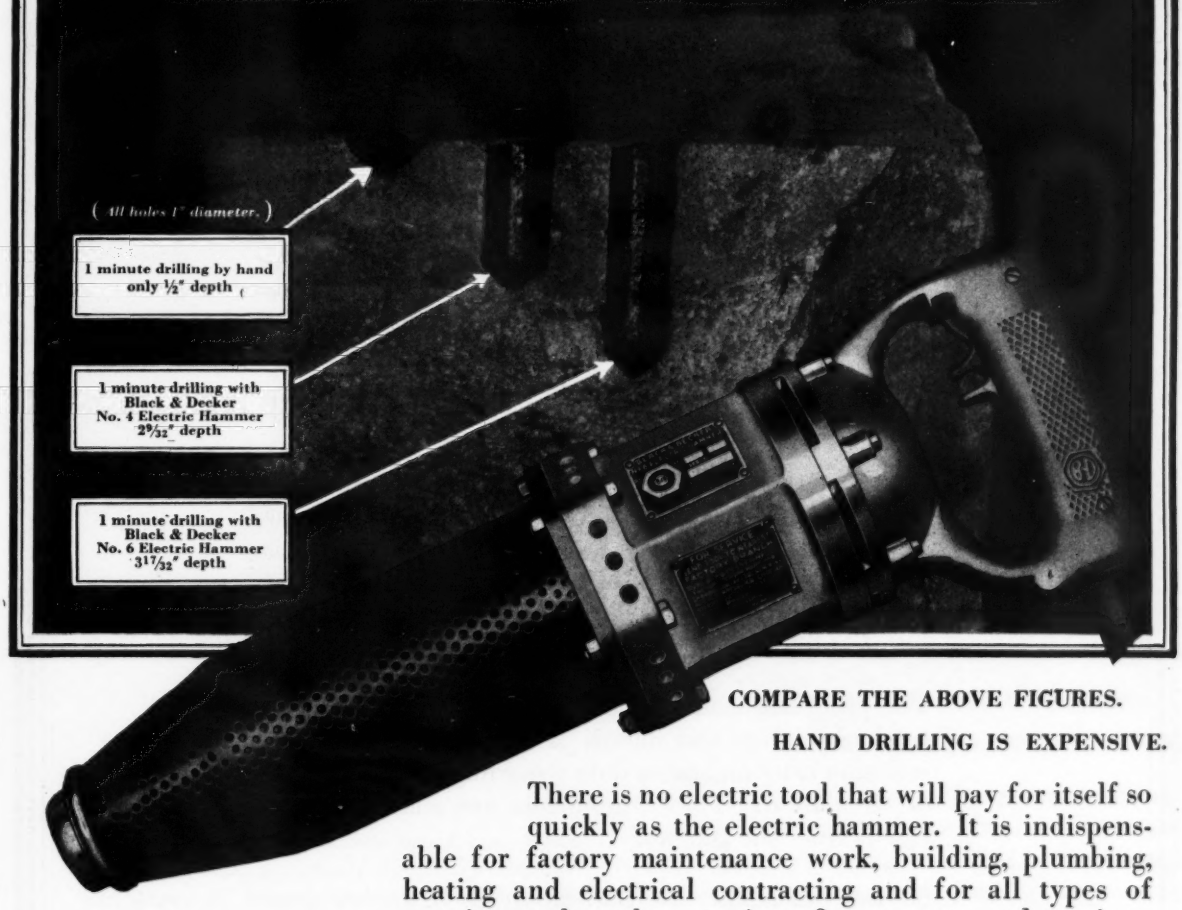
The story of The Smith & Wesson Flush Valve is a strict dollars and cents merchandising feature you should hear. It has to do with the superior design, sturdy construction and dependable performance of a flush valve simplified so that anyone can understand why it is better.

You, quickest of all, can see why it is bound to solve flush valve difficulties. Give your customers a chance to see too. Display a Smith & Wesson Flush Valve in your showroom! Tell them about it! Sell it!

SMITH & WESSON
FLUSH VALVE DIVISION
SPRINGFIELD, MASS.

SMITH AND WESSON FLUSH VALVES

TIME SAVED ON ONE JOB FREQUENTLY PAYS FOR THE TOOL


(All holes 1" diameter.)
1 minute drilling by hand only ½" depth
1 minute drilling with Black & Decker No. 4 Electric Hammer 2 9/32" depth
1 minute drilling with Black & Decker No. 6 Electric Hammer 3 17/32" depth

COMPARE THE ABOVE FIGURES.

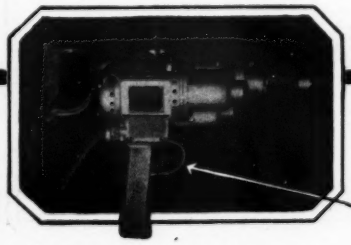
HAND DRILLING IS EXPENSIVE.

There is no electric tool that will pay for itself so quickly as the electric hammer. It is indispensable for factory maintenance work, building, plumbing, heating and electrical contracting and for all types of erection work, such as awnings, fire escapes, outdoor signs, etc., and for the installation of elevators or any other type of equipment requiring drilling of holes in brick or concrete.

Your Supply Jobber will be only too glad to demonstrate a Black & Decker Electric Hammer "right on the job".

Black and Decker Portable Electric Hammers can be plugged into any electric light socket, making them instantly available.

ACTUALLY THE TIME SAVED ON ONE JOB FREQUENTLY PAYS FOR THE TOOL



The BLACK & DECKER MFG. CO.

TOWSON, MD.

Slough, Bucks., England — Toronto, Ontario, Canada

Sydney, Australia

"With the Pistol Grip and Trigger Switch"

The A.B.C.

What it is and What it Stands for

The A. B. C. was started for and exists for the advertiser. It gives him the facts about the circulation which he buys. It is governed by advertisers through their majority on the Board of Directors, which is composed of thirteen national advertisers, two advertiser's agents, four newspapers, two magazines, two farm papers, and two business papers. As you can see, the majority are advertisers. They make all the rules governing audits and have complete control over the auditors.

The members are cooperating with the object of standardizing circulation data and thereby placing the buying of advertising on a basis of known value. It has established the principle of honesty in circulation and placed the buying and selling of advertising on a sound, business-like basis.

The publisher makes reports to the Bureau, showing total circulation and details of distribution, also subscription rates and other data regarding the QUALITY of circulation. These statements are audited by an expert from the Bureau.

So you can readily see that an A. B. C. report gives complete and reliable information and an advertiser could have no better protection than an A. B. C. report on all publications in which he advertises.

DOMESTIC ENGINEERING is a member of the A. B. C. and would be pleased to submit a copy of the latest report.

DOMESTIC ENGINEERING
1900 PRAIRIE AVENUE CHICAGO

28% of all "Silent" installations are made in WARM AIR heating systems

FOR WARM AIR, STEAM AND HOT WATER HEATING SYSTEMS—OLD OR NEW HOMES

HERE is *indisputable proof* that Silent Automatic is *ideally suited* to installation in *warm air* heating systems. Moreover, this percentage of total installations is steadily increasing.

Silent Automatic, because of its NOISELESS wiping WALL-FLAME, has been installed with complete success in *thousands* of WARM AIR heating systems . . . as well as in many thousands of hot water, steam and vapor systems.

Owners of homes heated with warm air are among the thousands of loyal and enthusiastic owners of Silent Automatics whose unqualified "owner satisfaction" has placed "Silent" in its position of *world-leadership.*

This outstanding record of success . . . these thousands of owners who *actively cooperate* in *selling* "Silents" . . . insure the success of "Silent" dealers.

SILENT AUTOMATIC CORPORATION
12001 East Jefferson Ave. Detroit, Mich.

SILENT AUTOMATIC
THE NOISELESS OIL BURNER

Made by the World's Largest Producer of Domestic Oil Burners

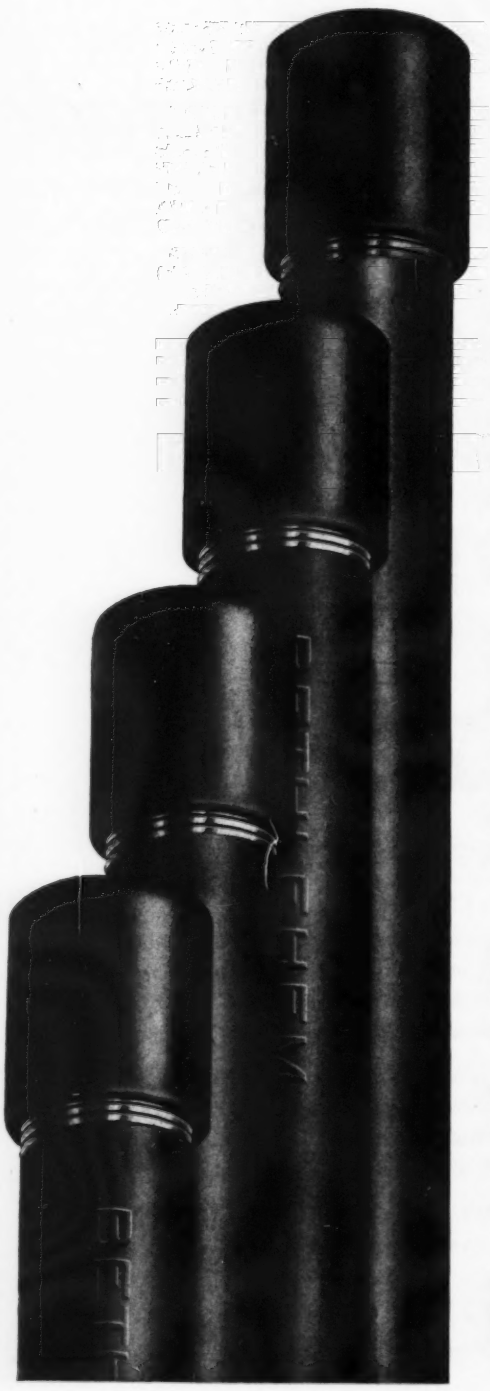
(327)

C O U P O N

SILENT AUTOMATIC CORPORATION
Please give me full information on the Silent Automatic Dealer Plan. I want to share in "Silent's" outstanding success

Name_____
Company_____
Address_____
City_____ State_____

MADE TO ESTABLISHED STANDARDS



In order to meet promptly the requirements of jobbers, stocks of both Bethlehem Steel Pipe and Bethlehem Copper-Bearing Pipe in all standard sizes are maintained at the Sparrows Point Plant, Sparrows Point, Md.

Careful workmanship and high-grade material go into the manufacture of Bethlehem Steel Pipe. Each step in its production is carried out under the supervision of men thoroughly experienced in pipe manufacture. Strength, uniformity, ductility, sound welds, clean, smooth surfaces, freedom from flaws—these qualities are assured by care in manufacture and by tests and inspections far more rigid than standards require.

In addition to these features the purchaser of Bethlehem Steel Pipe is assured of a product that conforms in every respect to a definite and long-established standard of quality—the standard to which this company has been working throughout more than half a century devoted to the manufacture of steel and steel products.

The nearest Bethlehem District Office will gladly give you further information about Bethlehem Steel Pipe. Your inquiry or order will receive immediate attention.

BETHLEHEM STEEL CO., *General Offices:* Bethlehem, Pa.

District Offices: New York, Boston, Philadelphia, Baltimore, Washington, Atlanta, Buffalo, Pittsburgh, Cleveland, Cincinnati, Detroit, Chicago, St. Louis.

Pacific Coast Distributor: Pacific Coast Steel Corporation, San Francisco, Los Angeles, Seattle, Portland, Honolulu.

Export Distributor: Bethlehem Steel Export Corporation, 25 Broadway, New York City.

BETHLEHEM STEEL PIPE

A Prominent Boiler Manufacturer Writes . .

"I think this is a mighty good record— The Stoker has been operating for five years and there has been no mechanical trouble whatever, nor parts replaced."

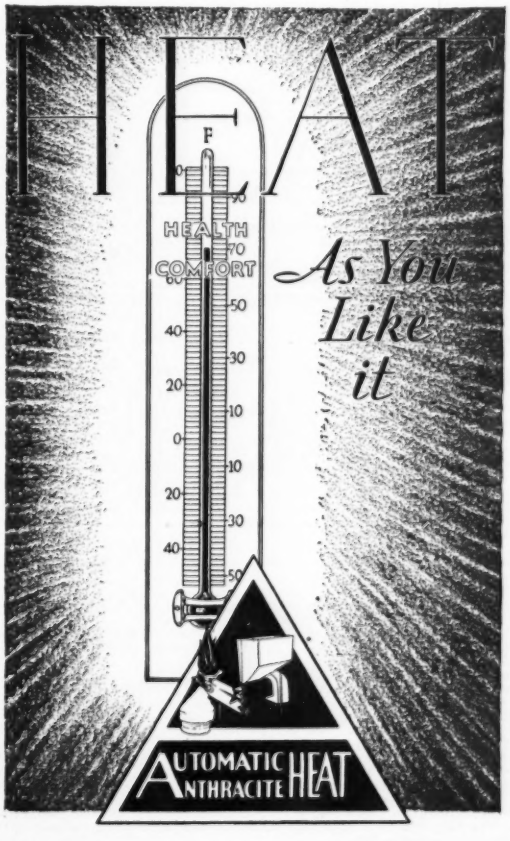
THE ELECTRIC FURNACE-MAN satisfies the most exacting demands. Records of years of service carry *more weight* than blueprints. It is easy to make claims but actual performance is what you are interested in. Demand evidence of reliability, stamina and efficiency which only years of service *in every type of heating plant* can provide.

The ELECTRIC FURNACE-MAN has more than 10,000 installations to its credit. Each year its sale is expanding through the influence of increasing thousands of satisfied customers — a growing recognition of the SAFETY, CONVENIENCE, CLEANLINESS and ECONOMY of this time-tested system of AUTOMATIC HOME HEAT with PENNSYLVANIA ANTHRACITE (Buckwheat sizes)—the ideal domestic fuel.

HOME OWNERS have now had time to weigh the evidence—comparing the comfort and security as well as the economy of the ELECTRIC FURNACE-MAN with other devices using substitute fuels. They have discovered that the ELECTRIC FURNACE-MAN is the modern and efficient means of obtaining automatic heating comfort.

350 distributors and dealers in principal cities—

prepared to make authoritative heating surveys and fully guaranteed installations for home heating, small commercial purposes, and hot water supply in apartments, clubs, hotels and public buildings. Consult our local dealer or write for descriptive literature.



The Electric Furnace-Man

(Patented Automatic Coal Burner)

Domestic Stoker Company **7 Dey Street, New York**

SPECIAL NOTICE

to

Plumbing and Heating Contractors

You can secure without charge, upon request, catalog sheets of any or all of the manufacturers listed below for use in loose-leaf binder.

These sheets are reprints of pages appearing in "Domestic Engineering Plumbing and Heating Catalog." They conform to the standards adopted by the plumbing and heating industries as to page size, punching and weight of stock. If interested, write Domestic Engineering, 1900 Prairie Avenue, Chicago, on your letterhead giving the names of the concerns whose loose sheets you desire.

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American Pipe Tool Co ..... Chicago, Ill.
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Little Giant Mfg. Co	Minneapolis, Minn.
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Lucke, Wm. B	Wilmette, Ill.
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Miller Co., Chas. A	Sturgis, Mich.
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Milwaukee Valve Co	Milwaukee, Wis.
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Morton Mfg. Co	Chicago, Ill.
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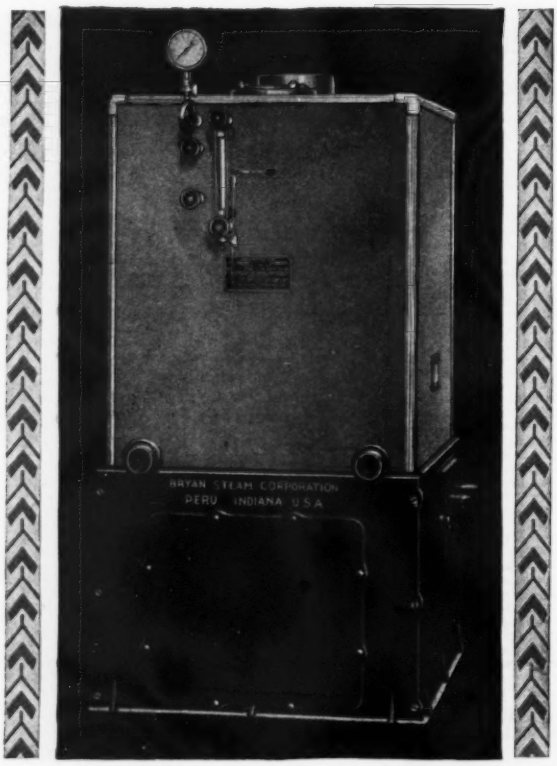
Nason Mfg. Co	New York City
National Pipe Bending Co	New Haven, Conn.
Neptune Meter Co	New York City
Newark Brass Works	Newark, N. J.
New Britain Machine Co	New Britain, Conn.
Newbury Mfg. Co	Monroe, N. Y.
Newbury & Son, Jay H	Goshen, N. Y.
New York Air Valve Corp	New York City
New York Blower Co	Chicago, Ill.
New York Brass Foundry Co	New York City
Northern Indiana Brass Co	Elkhart, Ind.
Northwestern Chemical Co., The	Marietta, Ohio
Nustone Products Corp	Union City, N. J.
Nye Tool & Machine Works	Chicago, Ill.
O-E Specialty Mfg. Corp	Milwaukee, Wis.
Ohio Brass Co	Mansfield, Ohio
Ohio Heater Co., The	Columbus, Ohio
Olsen, H. T	New York City
Oster Mfg. Co	Cleveland, Ohio
Paine Co	Chicago, Ill.
Para Rubber Co	Newark, N. J.
Paradine Mfg. Co	Erie, Pa.
Peerless Machine Co	Racine, Wis.
Penn Engineering Co	Reading, Pa.
Penn Engineering Co., The	Philadelphia, Pa.
Perfect Tank & Seat Co	Syracuse, N. Y.
Perfection Stove Co	Cleveland, Ohio
Phoenix Brass Fittings Corp	Irvington, N. J.
Pittsburg Water Heater Co	Pittsburgh, Pa.
Plomb Tool Co	Los Angeles, Cal.
Polygon Products Co	Boston, Mass.
Portland Iron Works	Portland, Ore.
Power Regulator Co	Chicago, Ill.
Radiator Specialty Co	Charlotte, N. C.
Rawplug Co., Inc., The	New York City
Redlon, O. M	Bath, Maine
Reed Mfg. Co	Erie, Pa.
Reinhardt Mfg. Co., Edwin G	Cincinnati, Ohio
Rhode Island Fittings Co	Providence, R. I.
Richards Corp	Pittsburgh, Pa.
Richardson & Boynton Co	New York, N. Y.
Richmond Foundry & Mfg. Co., Inc	Richmond, Va.
Ridge Tool Co	Elyria, Ohio
Riverside Boiler Works, Inc	Cambridge, Mass.
Riverside Foundry & Galvanizing Co	Kalamazoo, Mich.
Robbins, Gamwell & Co	Pittsfield, Mass.
Robertshaw Thermostat Co	Youngwood, Pa.
Robertson Co., H. B	Chicago, Ill.
Rock Island Mfg. Co	Rock Island, Ill.
Rockford Brass Works	Rockford, Ill.
Royal Brass Mfg. Co., The	Cleveland, Ohio
Rumsey Pump Co., Ltd	Seneca Falls, N. Y.
Russell Mfg. Co., Inc., John M	Naugatuck, Conn.
Russell & Co., W. A	New York City
Ryan Co., B	New York City
S. E. T. Valve & Hydrant Co	New York, N. Y.
Sall Mountain Co	Chicago, Ill.
Sands Mfg. Co	Cleveland, Ohio
San-Equip, Inc	Syracuse, N. Y.
Sanitary-Dash Corp	New York City
Sarco Co., Inc	New York City
Savo Mfg. Co	Chicago, Ill.
Scaife & Sons Co., Wm. B	Oakmont, Pa.
Scientific Heater Co	Cleveland, Ohio
Seco Incinerator Co	Kansas City, Mo.
Seehausen, Wehrs & Co	Chicago, Ill.
Self-Cleaning Strainer Co	Chicago, Ill.
Selfridge-Norton Mfg. Co	Cleveland, Ohio
Semler Co	Jeannette, Pa.
Sherwood Brass Works	Detroit, Mich.
Silver King Mfg. Co	Philadelphia, Pa.
Simonds Saw & Steel Co	Fitchburg, Mass.
Simplex Boiler Stand Co	Brooklyn, N. Y.
Simplex Mfg. Co	Chicago, Ill.
Smith & Wesson, Inc	Springfield, Mass.
Smooth-On Mfg. Co	Jersey City, N. J.
Spencer Regulator Co	Salem, Mass.
Stack Heater Co	Boston, Mass.
Standard Asbestos Mfg. Co	Chicago, Ill.
Standard Elsmere Granite Co	Chicago, Ill.
Standard Tank & Seat Co	Camden, N. J.
Sterling Faucet Co	Newcomerstown, Ohio
Stoll, Chas. J	New York City
Stringer Brothers Co	Chicago, Ill.
Structural Slate Co	Pen Argyl, Pa.
Stuart & Co., D. A	Chicago, Ill.
Swett Iron Works, A. L	Medina, N. Y.
Taco Heaters, Inc	New York City
Taylor Co., Halsey W., The	Warren, Ohio
Teck Manufacturing Co	Chicago, Ill.
Teekorator, Inc	Rochester, N. Y.
Tillery's Little Janitor Clock Co	Newark, N. J.
Time-O-Stat Controls Co	Elkhart, Ind.
Titchener & Co., E. H	Binghamton, N. Y.
Toledo Pipe Threading Machine Co	Toledo, Ohio
Trageser Steam Copper Works, John	Maspeth, N. Y.
Trenton Brass & Machine Co	Trenton, N. J.
Trimont Mfg. Co., Inc	Boston, Mass.
Tryco Products, Inc	Westfield, Mass.
Utica Radiator Corp	Utica, N. Y.
Utility Laboratory, Inc	Brooklyn, N. Y.
Van Arnam Mfg. Co	Fort Wayne, Ind.
Vanderman Mfg. Co	Willimantic, Conn.
Vinco Co., Inc	New York City
Vitreous Enameling & Stamping Co., Inc	New York City
Vogel Co., Joseph A	Wilmington, Del.
Vulcatex, Inc	Chicago, Ill.
Wade Iron Sanitary Mfg. Co	Chicago, Ill.
Walker Dishwater Corp	Syracuse, N. Y.
Walworth Company	Boston, Mass.
Ware Coupling & Nipple Co	Ware, Mass.
Warnock Manufacturing Co	Worcester, Mass.
Warren Electric Appliance Co	Warren, Pa.
Washington Metal Products Co	Washington C. H., Ohio
Watts Regulator Co	Lawrence, Mass.
Weis Mfg. Co., Inc., Henry	Elkhart, Ind.
Wesley Co., Chas	Chicago, Ill.
Wessels & Sons, D. D	Detroit, Mich.
Western Wire Products Co	St. Louis, Mo.
Westinghouse Electric & Mfg. Co	East Pittsburgh, Pa.
Wheeling Machine Products Co	Wheeling, W. Va.
Whitlock Coil Pipe Co	Hartford, Conn.
White Mfg. Co	Newark, N. J.
Wilbur & Williams Co	Boston, Mass.
Wilks Mfg. Co., S	Chicago, Ill.
Williams & Co., J. H	Buffalo, N. Y.
Wood Mfg. Co., John	Conshohocken, Pa.
Worcester Brush & Scraper Co	Worcester, Mass.
"X" Laboratories	New York City
Yeomans Brothers Co	Chicago, Ill.
Yost Mfg. Co	Meadville, Pa.
Zurn Mfg. Co., J. A	Erie, Pa.

OIL BURNERS DEMAND A SPECIALIZED BOILER



RIGHT: *Contrast this maze of copper-tubes through which every heat unit must pass in the Bryan Boiler, with the bulky, heavy cast-iron sections of the conventional coal-burning type of boiler. With Bryan there is no "laning" or stratification of the hot gases. The heat is broken up, time after time, by rushing head-on into the copper-tubes, which are capable of absorbing and transmitting heat nearly eight times as fast as a cast-iron section of equal size.*

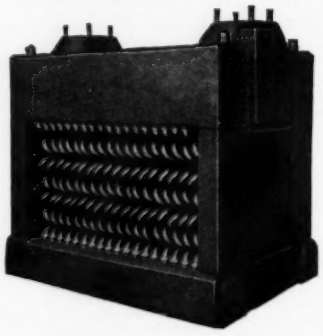
OIL-HEAT is sudden and intense, reaching its peak temperature almost the instant the burner is ignited . . . There is no period of gradually increasing temperatures, and gradual heat absorption, as with a coal fire.

To work efficiently and economically with an oil-burner—to prevent *waste* of the heat so quickly generated—a boiler must be able to *absorb* this heat as fast as it is produced.

Bryan has designed a boiler which does this—largely through the use of copper tubes which are capable of absorbing heat nearly eight times as fast as cast iron—and through an entirely new principle of construction which increases water circulation proportionately. All heat generated is absorbed and transmitted almost instantly, with a maximum of efficiency. In actual service, Bryan Copper-Tube Boilers consistently show a fuel saving of 30 percent to 50 percent over other types.

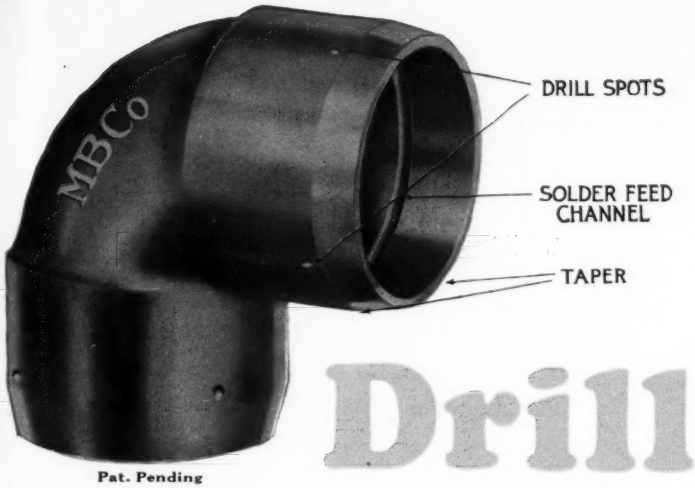
The Bryan Copper-Tube Boiler has little in common with other boilers. It was designed from the outset to take advantage of the combustion characteristics peculiar to oil and gas—and to do this it was found necessary to depart completely from conventional coal burning boiler design.

The complete story of the Bryan Copper-Tube Boiler, together with the usual technical data, is contained in the Bryan Catalog. We believe it will be of interest to you, and will be glad to forward it if you will write.



BRYAN STEAM CORPORATION
(Boiler Division)
PERU, INDIANA

BRYAN Copper-Tube BOILERS



Pat. Pending

Why the Drill Spots?

Pat. Pending

Pat. Pending

Pat. Pending

Pat. Pending

Pat. Pending

Mueller **STREAMLINE** Fittings are provided with drilling location spots closely situated where the taper begins. These spots are for your convenience when drilling the hole for feeding in the solder. Since on anything but a bushing type **STREAMLINE** fitting, the solder feed hole cannot be previously fixed, there are enough drilling location spots provided so that you may readily choose the most convenient one.

REMEMBER IT IS NECESSARY TO DRILL ONE HOLE ONLY — SOLDER CANNOT BE FED IN SUCCESSFULLY THROUGH THE END OF THE FITTING OR IN ANY OTHER WAY EXCEPT THROUGH THE DRILLED HOLE.

Pat. Pending

On the bushing or cylindrical type of STREAMLINE fittings, the solder feed hole is already drilled when you receive it, simply because you can turn it on the tube to have the hole in any convenient location to feed in the solder. Obviously, the holes in fittings such as elbows, tees, etc., cannot be pre-located and are furnished with drilling location spots. You simply drill through the most convenient one and feed in the solder at this point.

IF A CONNECTION WITH STREAMLINE COPPER WATER TUBE AND FITTINGS IS PROPERLY MADE, THE RESULTING JOB IS ONE OF WHICH YOU CAN BE JUSTLY PROUD.

When making a connection, first brighten the end of the tube to be inserted, with sandpaper, for at least 1½ to 2 inches and also rub the inside of the fitting where the pipe goes into it with sandpaper. **EMERY CLOTH WILL NOT DO.**

Then apply Mueller non-corrosive solder paste to pipe and fitting. **A LIQUID FLUX WILL NOT DO.**

Apply blow torch and feed in the solder through the hole you have drilled for the purpose.

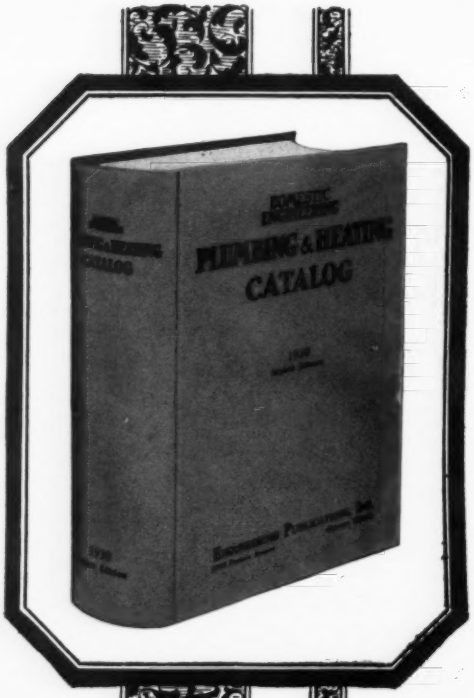
The whole principle of making a joint with **STREAMLINE** Copper Water Tube and fittings is by utilizing one of nature's own laws — that of capillary attraction. The successful application of this law depends upon close tolerances and clean surfaces. Mueller **STREAMLINE** Copper Water Tube is designed for and intended to be used with **STREAMLINE** fittings. With this combination and by following the instruction card furnished, failures are impossible.

Let us send you a STREAMLINE solder instruction card and a copy of our catalog — yours for the asking.

Mueller Brass Co.

Port Huron, Mich.

Three Generations of Brass Making



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Published By

DOMESTIC ENGINEERING

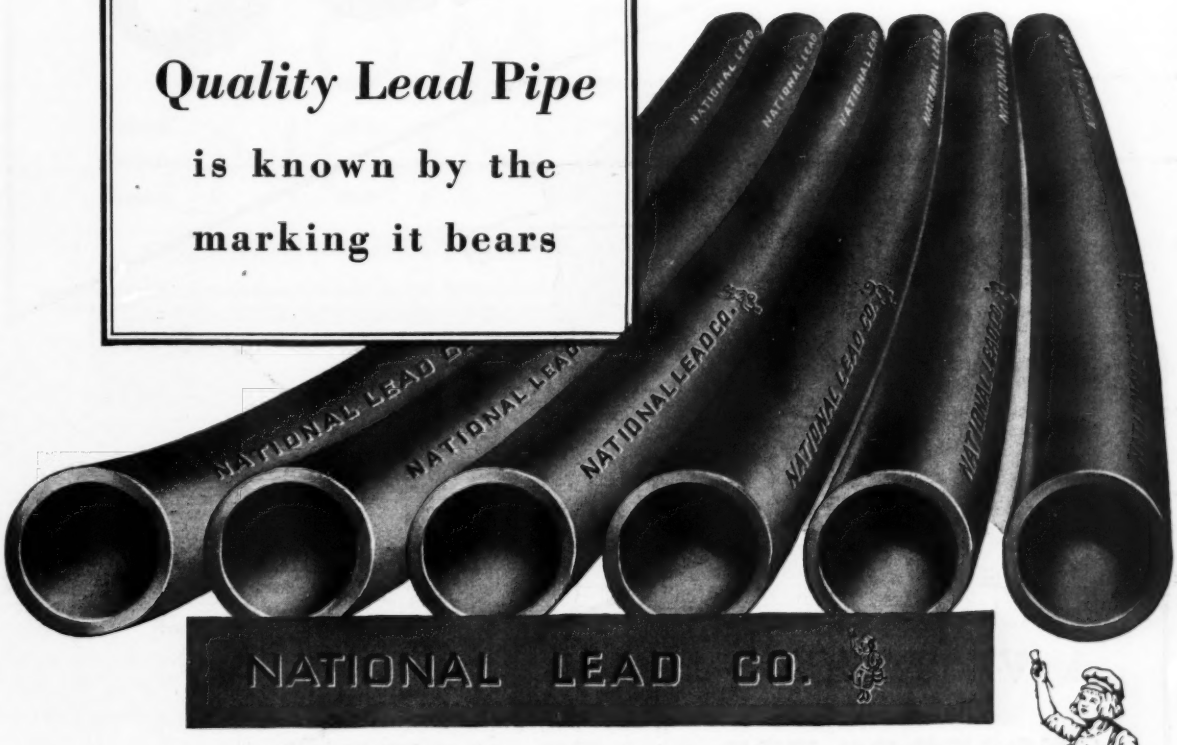
Catalog Department

1900 Prairie Avenue **Chicago, Ill.**

A PLANE IS KNOWN BY THE MARKING IT CARRIES

Quality Lead Pipe

is known by the marking it bears



It pays to look for this mark of Identification

Now quality in lead pipe bears the label of quality—National Lead pipe is marked every few inches so that you and other buyers can always be sure of getting a high quality dependable product, of correct wall thickness, of proper weight per foot.

Your experience has undoubtedly proved that it pays to use none but the finest materials for high class installations. Quality lead pipe gives trouble-free service throughout its long life. Trouble-free service! That's what customers want—and that's what quality lead pipe gives them.

Plumbers also have other reasons for using lead pipe: its flexibility—the ease with which it is stored, handled and installed—its adaptability to varying conditions—its exceptional corrosion-resistance. Lead pipe can never rust—can never cause rust-clogged lines and rust-tinged water.

For those customers who want the best, use National Lead pipe. There are bigger profits and a bigger reputation in quality lead pipe jobs.

LEAD PIPE

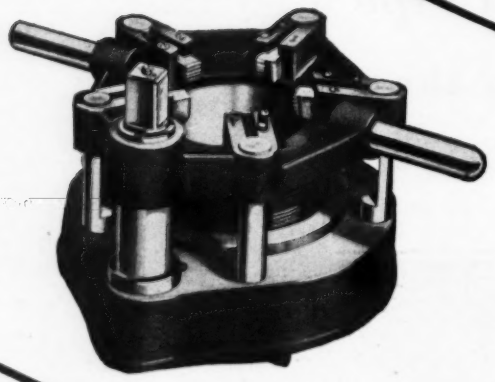
NATIONAL LEAD COMPANY

New York, Baltimore, Buffalo, Chicago, Cincinnati, Cleveland, St. Louis; National-Boston Lead Co., Boston; Georgia Lead Co., Atlanta; Gibson & Price Co., Cleveland; National Lead & Oil Co., of Pennsylvania, Pittsburgh; John T. Lewis & Bros. Co., Philadelphia.

LEAD THE EVERLASTING METAL

The Dutch Boy trade-mark on solder is also a guarantee of uniformity and dependability. Since every bar, every ingot is numbered to denote its composition, you can be sure of getting the same kind every time you buy. There's a grade of Dutch Boy Solder for every soldering purpose . . . including wiping.

TOLEDO



A VETERAN

"TOLEDO" FOR 2½" TO 4" PIPE

Years ago piping jobs required brawn not brains. The most powerful pipe fitter, he who could exert the greatest pull on the old block dies with his mighty arms was the envied worker of the trade.

But times have changed. Feats of strength are no more a part of the day's work. "TOLEDO" pioneer leader of easier operating pipe threaders, with the first "TOLEDO" No. 2 tool nearly 30 years ago made the work of threading large pipe easy for man or boy. Today, this improved "TOLEDO" No. 2 shown above, lighter in weight, easier to handle, is the finest and most efficient of all 2½-in. to 4-in. hand operated threading tools.

You will make no mistake in specifying "TOLEDOS" when in need of pipe tools or machines.

A "TOLEDO" Power Drive instantly makes hand operated pipe tools swift, highly efficient power machines. When maximum efficiency is desired use one. A post card brings complete information.

"TOLEDO"

THE TOLEDO PIPE THREADING MACHINE CO.

TOLEDO, OHIO

New York Office: 72 Lafayette Street

DOMESTIC ENGINEERING

PLUMBING AND HEATING CONTRACTING AND MERCHANDISING

Observations

Faith, Based on Experience

"Up to the first of this year we spent 2 per cent for advertising. But since the first of the year conditions have been so poor that we stepped that amount up to 3½ per cent."

This statement was made by a successful plumbing contractor at the national convention in Boston. It would be easy to write an excited editorial about his courage and on that basis to urge others of our readers to go and do likewise.

We prefer to base our comment on less excited and more practical grounds. Getting business in times like these is not a matter of emotional excitement—it's a matter of practical business judgment. When the gentleman in question said that his firm had increased its advertising efforts because conditions were not as good as last year, he indicated that his firm had done the only reasonable thing under the circumstances.

Practical Judgment

It showed faith in advertising, based on experience. Advertising, properly used, does produce results. And, just as the driver of an automobile gives his motor more fuel when he is on an upgrade, so the business executive knows that when his business is on an upgrade he must accelerate his selling effort. It will increase business.

Further, a more intensive sales effort when things are not booming, gives assurance of a better share of the business to be had when conditions are easier. A firm can not drop out of the selling field when the going is a bit difficult, and hope to see its sales grow in proportion as conditions get better. The public will remember the man who kept his name before it, and the firm which has allowed its selling effort to lapse has lost ground which must be made up before it will be getting the portion of the business to which it has been accustomed.

No less an authority than Roger Babson recently issued a statement to the effect that this is no time to let up on selling efforts. While his remarks were directed primarily at manufacturers, they apply with equal force to the retailer.

Equally, this is a time when the retailer should seek every aid possible. In advising a more intensive effort in selling, it does not necessarily mean that the retailer must spend more money; although, if he can afford to do so, it will be the quickest way to produce results. But he must study what he is doing to assure himself that he is overlooking no chances. His list of old customers will yield him business and if he has not been in contact with them, some thought over the work done for them in the past will call to mind work which they might need in the way of modernization. He must make every selling effort more telling, more efficient.

Where To Find Help

That means that his selling and merchandising ideas must be overhauled and added to. It argues the need for a careful scanning of sources of ideas. His busi-

ness paper, for instance, offers him selling ideas. The "Plumbing and Heating Merchandising" section in this paper offers nothing but tried ideas—ideas which other contractors have put to work and proved. Here are suggestions in connection with the sale of specialties, methods of securing prospects, of using colored fixtures to win business, samples of successful newspaper advertisements and direct-mail literature, and a host of other plans and ideas, ready-made, as it were, because some other contractor has tried them out and found them productive of results.

There is business to be had; and there are contractors who are getting it. The business paper indicates where that business lies, and how it may be developed. It is, therefore, a powerful aid to the man who is alert to make the most of his opportunities.

Vacation-Time

The mind, psychologists say, doesn't need rest—it needs change. Hence the vacation season. If the mind is not given change it grows stale—that is, it becomes first indifferent and then annoyed at its usual surroundings. When that happens, worry commences. And when men worry they cease to think constructively.

We hope for our readers, "one and all" as Tiny Tim said, a pleasant vacation period—one in which their minds will be refreshed by changes of scenery and occupation so that they may face the problems of business after their vacations without a trace of worry and with their faculties for constructive thinking at the peak of efficiency.

Selected Dealers Most Effective

In the last few months we have carried on a discussion in these columns of the selling methods used by the manufacturers of various specialties. Our discussion has centered around such specialties as oil burners and automatic stokers, with particular reference to the method of selecting dealers.

The discussion grew out of our feeling that the manufacturers of stokers were making the same mistake as had been made earlier by the oil burner manufacturers. They were attempting to increase sales by greatly increasing dealer outlets. In this attempt to set up dealer outlets they have sought to interest the coal dealer, apparently with some success, at least in so far as acceptance of the idea is concerned.

So, no doubt, did the oil burner manufacturers find garage men, grain dealers, general storekeepers, and a host of other types of retailers, interested in what seemed to them a profitable sideline. But the oil burner manufacturers were rudely disappointed. The oil burner received a setback, due to the fact that it had been installed in a great many cases in heating plants which would not have functioned properly under any circumstances. It suffered from faulty installations and from poor service after installation; although the burner in question may have been quite all right mechanically.

A Set-Back

A recent story, issued by a sales executive whose company markets a widely used piece of household equipment, throws a flood of light on the matter of dealer selection. Commenting on examples of attempts to expand dealer organizations in his field, this executive says: "In attempting to attain 100 per cent distribution, they disregarded the quality of their distribution, both wholesale and retail."

That reads like an accurate statement of the attempt in our own field to seek outlets for heating equipment among men who are not heating contractors.

Commenting on the smaller, selected dealer organization, this executive goes on to say: "It is vastly better for a manufacturer to have a few live dealers than an army of indifferent ones." That word "indifferent" is not to be taken to mean negligent dealers. It simply means that men whose main interest lies, let us say, in the sale of fuel, are bound to be somewhat indifferent toward the details of selling the equipment which consumes that fuel. They can not be experts in such equipment for the simple reason that they are, or ought to be, experts in fuel. The statement of a coal man at a recent meeting of that trade, for instance, to the effect that a "little training in the rudiments of engineering" will enable any coal salesman to meet most any heating plant problem is, on the face of it, ridiculous.

A Secondary Interest

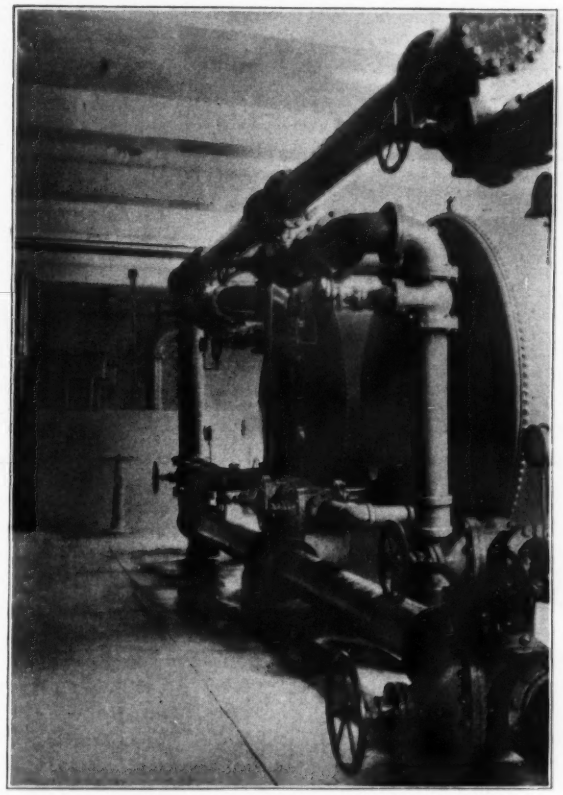
So, because these dealers look upon the equipment as an aid to selling the thing they are interested in, that equipment plays second fiddle all along the line. If they can sell a man coal without the bother of selling a stoker, they aren't going to take the time to demonstrate the stoker. And if they do talk stoker, it will be because they have become a bit desperate under the statement of the customer that he is thinking of changing over to some other fuel than the coal they sell.

The most practical and convincing proof of the need for selected dealerships is this: The company which the executive we have quoted represents, in the years between 1919 and 1926 increased its business about forty times what it was in the earlier year. During that time it decreased its dealerships by 83 per cent. At the same time it accelerated its assistance to the dealers retained, for, as the executive in question says: "The independent retailer who is honest and intelligent, and who deserves to survive and prosper, must have all the support the manufacturer can give him."

Thus two major suggestions which have been urged for our own industry in these columns—selective selling and better sales management—present the reader with proof so convincing as to be overwhelming. If the quotations above mean anything, they mean this: Concentrate on the men who are interested primarily in your product, not in what it consumes; and give those men the assistance of the highest type of sales management procurable.

Pipe Salt Water *to* Seaside Pool

By
FREDERICK N. BOLLES



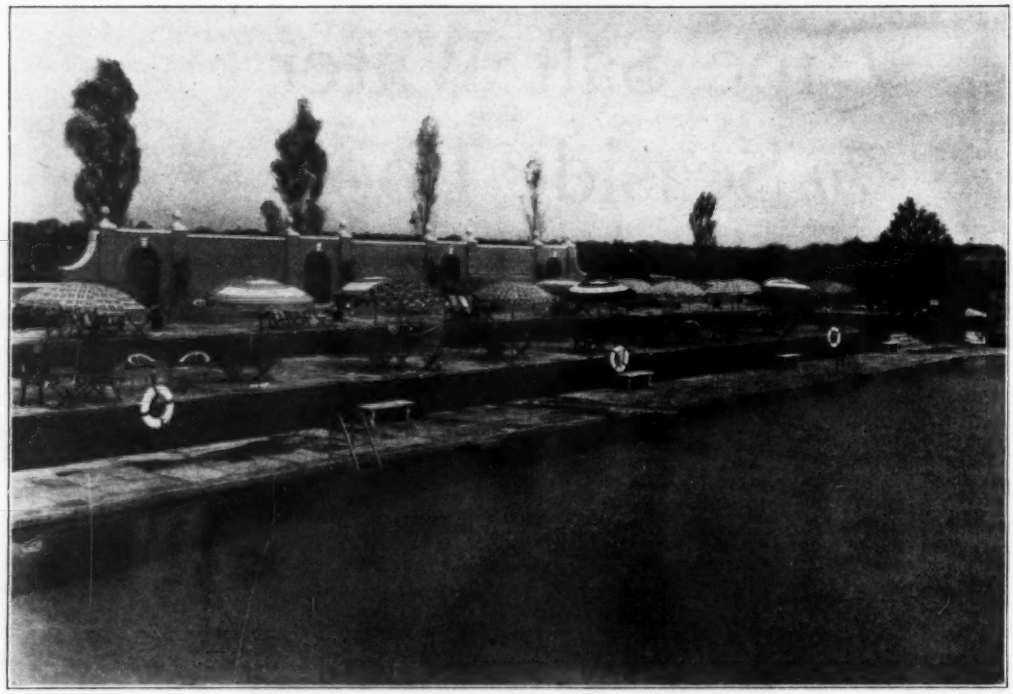
Through this filtering equipment, five hundred and seventy thousand gallons of water can be circulated in about six hours

Filtration was not the only problem met when the Westchester Country Club pool was built. Located on Long Island Sound, provision had to be made to prevent the tide from "floating" the structure of the pool

RECENT years have witnessed a pronounced development in the art of swimming pool construction, and the standards of design from the aesthetic as well as the practical standpoint constantly become more and more exacting. No longer can a swimming pool be merely a plain concrete bowl or glorified bathtub with the old-fashioned board runways and surrounding bath houses. Increased competition has compelled the promotors of commercial or public pools to expend sums, which a few years ago would have been considered unjustified, in making their swimming pools as artistic as possible and as sanitary as modern science can make them. Expensive filters and sterilizing devices are installed with high grade pumping equipment for filling the pool and re-circulating the water, replacing the old fill and draw system of not so many years ago, when the operator condescended to empty and refill the pool every other day if business was brisk. Quantitative and qualitative analyses of samples of the pool waters are made at frequent intervals, a proceeding unheard of not so long ago, and the results, if found favorable, given as wide publicity as possible with a view to demonstrating the hygienic safety of the pool. In this respect, state and municipal boards of health have taken a hand, compelling swimming pool operators to maintain their pools in as nearly a sterile condition as present day methods and appliances will accomplish.

As regards private estates, the swimming pool is now considered as much an essential as any other feature, with the result that there are today innumerable private pools constructed of stone, concrete and tile, both indoor and outdoor, many of exquisite design and beautifully landscaped. As in the case of the public pool, no expense is spared to secure sparkling clear water free from contamination.

Country, beach and community clubs have of necessity been obliged to keep pace with this constant improvement and ever-increasing standards of perfection, and therefore, about a year ago the Westchester country club at Rye, New York, decided to add an out-door salt water swimming pool to their



On the promenade, under brilliant sunshades, one may overlook the bathers' walk and watch those who are "in the swim"

luxurious beach club at Manursing Island on Long Island Sound. The club membership is composed of highly representative people, accustomed to traveling extensively and seeing the best both here and abroad, yet they all voiced the same sentiment, that the pool with its beautiful setting, exquisite landscaping, and splendid illumination presented one of the most beautiful spectacles that they had ever witnessed. Needless to say, the bringing of a project of this magnitude to such a culmination entailed a great amount of most careful and skillful study.

Major Problems Which Required Solving

It is the purpose of this article to describe a few of the major problems which had to be solved, followed by a general description of the design and construction.

The site selected faces directly upon Long Island Sound with the long axis of the pool parallel to the shore, a circumstance which at once suggested the creation of a series of terraces along the inshore side of the pool, affording an uninterrupted view of the pool, the bathing beach and Long Island Sound. The most economical way to secure the earth fill to create these terraces was to set the bottom of the pool at such a grade that the cut and fill would closely balance, or in other words so that the earth would be just sufficient to create the elevated terraces. The preliminary earth work computations proved to be accurate, and it was necessary to bring in but little outside earth to secure this balance. However, it was necessary to place the bottom of the pool, at the deep end, at plus or minus zero, that is, at mean high water mark, and since tides of seven feet or more above the average high tide are quite common in the spring and fall a material hydrostatic uplift on the bottom had to be provided for in the concrete design. The structural engineers successfully provided for this, as is shown in Fig. 1.

Piping Prevents Floating

If the pool were empty at the time of an exceptionally high tide there would be, of course, the possibility of its floating, so to speak, but this danger was obviated by the arrangement of the pool drainage piping which permits the tide to ebb and flow through the pool during the winter season. Test

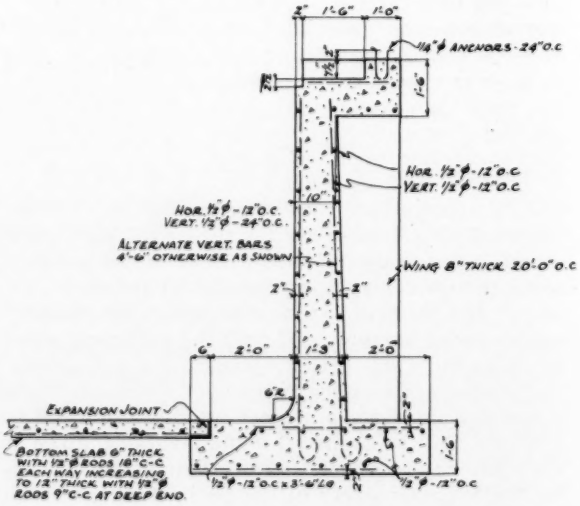


Fig. 1—Section through pool wall and bottom showing structural details which must take the powerful thrust and up-lift of the tide

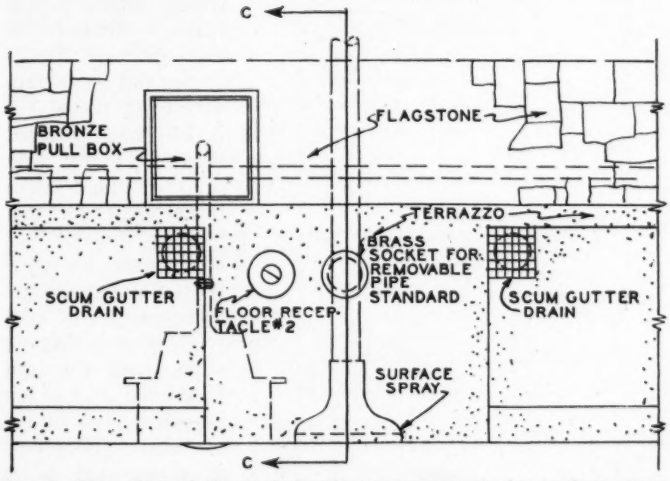


Fig. 2—Plan view of the pool showing arrangements for surface spray and underwater flood lighting

borings indicated that the sub-surface conditions were none too good, quick-sand and peat being encountered at about mean high water level. The natural grade at the site selected for the filtration and pumping building was about elevation plus ten, which meant that to install a drain line which would empty the pool by gravity an exceedingly deep cut would have been necessary, requiring pumping, shoreing, and for several hundred feet out into the Sound, the services of a diver. To overcome this difficulty the expedient was resorted to of building a suction and drainage pit inside of the filter building, thirteen feet long, seven feet wide and fourteen feet deep with the bottom at elevation minus five, or five feet below the bottom of the pool. The pool drains into this pit by gravity through a fourteen inch cast iron line. Two ten-inch centrifugal circulating and filling pumps were provided, one being for stand-by service, with a capacity of 1,500 gallons per minute each and driven by fifty horse power electric motors. The pumps take suction through a twelve-inch line from the suction tank mentioned above, and it is in this manner that the re-circulation of the pool water is accomplished, the discharge line from the pumps, naturally, leading to the filters, and then back to the pool. To come back to the matter of draining the pool, it will be noted by referring to Fig. 3, that the fourteen-inch drain line leads out of the suction tank, emptying into the sound below low water mark, a total distance of about four hundred feet, starting at the tank at an elevation of plus 2.67. This expedient minimized the excavation, and even with a good downward pitch the line emerged to the level of the beach well above low water mark. This arrangement meant, of course, that at the deep end of the pool there would remain a little less than three feet of water which could not be drained by gravity, but with the large pump capacity provided this small residue is quickly pumped out. Furthermore, the operation of the modern pool requires emptying and refilling only at rare intervals.

Water Supply for Pool

As regards the water supply for the pool, it was the first intention to drive a number of suction screens well out below low water mark, and tie them all into the suction line to the pumps. This method

Another view of the promenade showing almost the full one hundred and seventy feet length

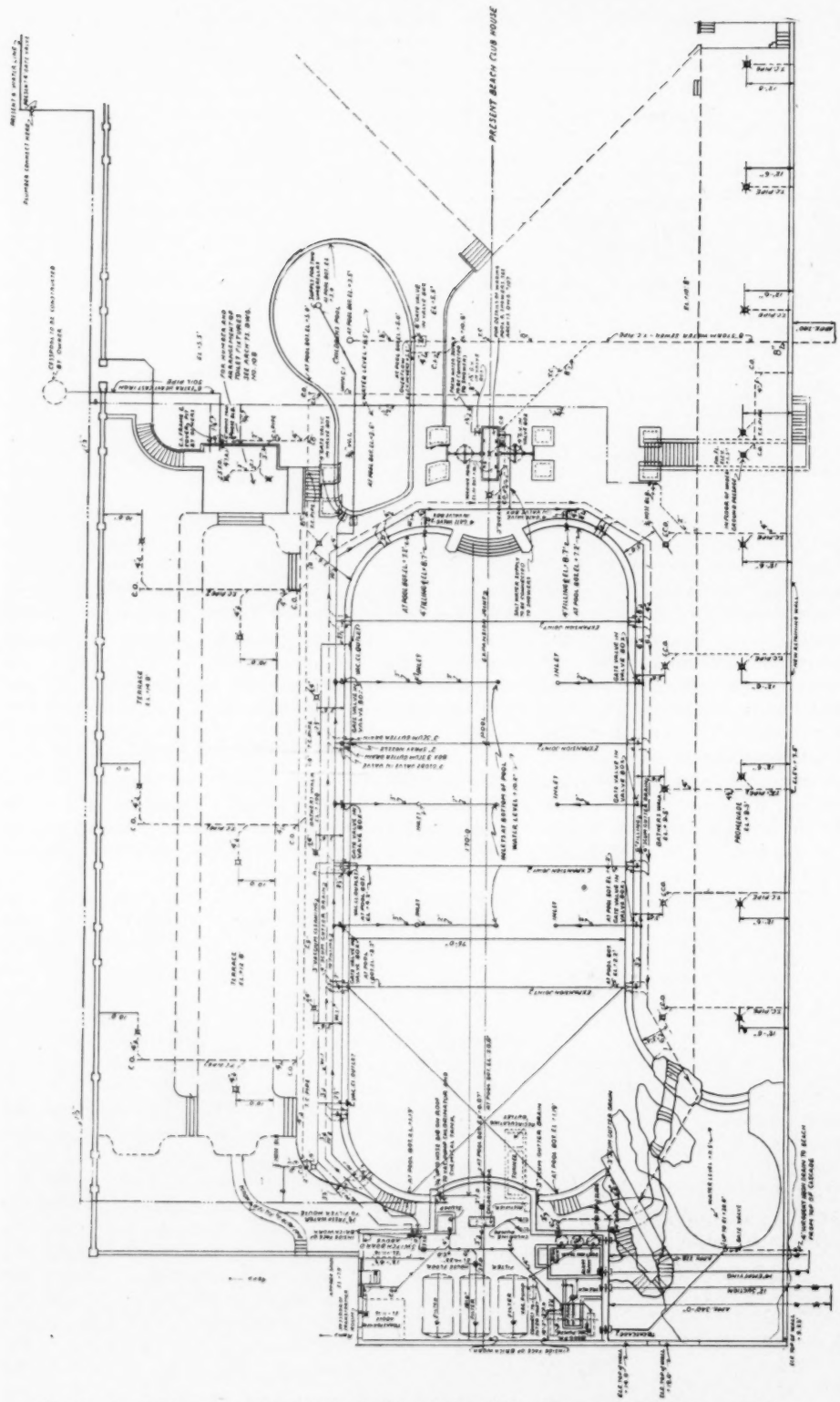


Fig. 3—A working plan showing the details of the piping layout and indicating what is involved in a project of this kind

has been employed very successfully by the writer in the past, and in one instance the screens were located fully one hundred yards back from high water mark. The water secured in this manner is as clear and sparkling as spring water for it has been filtered through many feet of the finest sand filter. However, test borings showed that an impervious stratum of clay made the utilization of the well screens impossible, and the old fashioned suction screen had to be resorted to. This screen is constructed of a cross of cast iron pipe drilled with a large number of one inch holes. If trouble is experienced with this type of screen, a crib will be constructed next year, filled with sand and gravel, and the well screens laid horizontally in this filtering bed. The suction line, twelve inch, enters the filtration building at the same elevation as the discharge or drain line, and it will be noted from the valving arrangement that it may also be utilized for emptying the pool in conjunction with the drain line. It should be stated here that the design of the pool and piping made it impossible to utilize the same line for both suction and drainage purposes. It will also be noted from the drawings that duplicate suction screens were installed in the concrete suction pit to screen the water from the pool before passing to the pumps and filters. The top of this suction tank inside of the filtration building is at level plus nine or about one foot below the level of the water in the pool, necessitating the provision of an overflow connected to the twelve inch drain line for the

filter backwash water, which in turn connects to the fourteen inch pool drain line previously described. The fourteen inch line from the bottom of the pool to the suction chamber is provided with a valve and indicator valve stand, and on the indicator is painted a setting of the valve which keeps the water level in the suction chamber constant when the pump is operating for re-circulating purposes. A wood gauge board was also provided, giving the operator a constant indication of the water level in the pit. The fourteen inch drain line from the suction pit was provided with a valve inside the pit, equipped with a gear and pinion device so that the stem comes out horizontally through the wall of the pit above the normal operating water level, making it easy of access for the operator. Indeed, one of the predominating features of the design is that the valves most frequently used by the operator are all grouped in close proximity to the pumps. A vacuum pump was provided, having a capacity of fifty cubic feet of air per minute at 10 in. of vacuum. It was found that even at low water this pump would prime the centrifugal circulating pump in about four minutes, and this through a suction line nearly four hundred feet in length, and a suction lift of about thirteen feet. It will be noted from the drawings that the pumps are located below the level of the water in the suction tank so that it is not necessary to prime them when starting for re-circulation purposes.

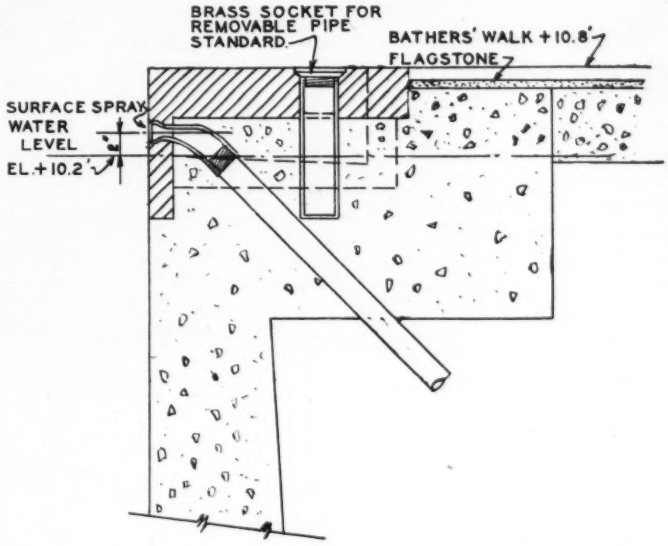
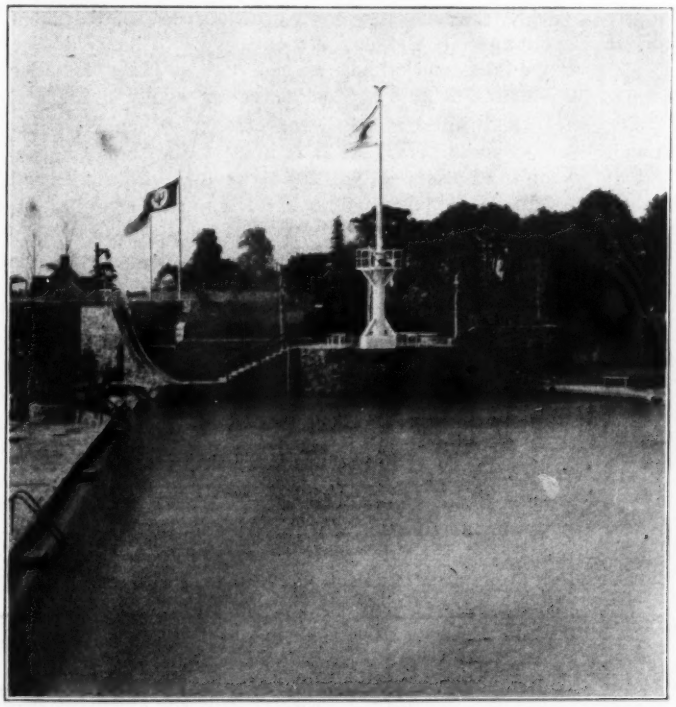


Fig. 4—Showing another detail of construction of swimming pool

The discharge lines of the two pumps are brought together into one ten-inch line which in turn leads to a tee, one branch from this tee, with its chain wheel valve, leading to the filters and the other branch, also provided with chain wheel valve, leading to the fourteen-inch drain line, beyond the suction pit. This branch is used for pumping out the residue in the pool left after the gravity drain line has done its work, as previously described. This line is also used to dispose of the discharge from the pumps when the vacuum cleaning system is being operated to clean the pool. Both of these branches are ten-inch. The branch to the filters drops vertically at the filters to the lower filter header, with a ten-inch valve in the vertical, which permits the operator to by-pass the filters and pump un-filtered water directly into the pool when desired.



A corner of the swimming pool

Filters

The filters are three in number, each eight feet in diameter by sixteen feet long, set horizontally. They are of the usual pressure type with sand and gravel as the filtering media. The pool has a capacity when filled of about five hundred and seventy thousand gallons, and the filters were designed on the basis of a filtering rate of three gallons per square foot, for a raw water from the sound, and a proportionally higher rate for filtering the pool water during re-circulation. The entire contents of the pool can be re-circulated and re-filtered in about six hours. The ten-inch discharge line from the last filter branches two ways, one branch leading to the supply inlets in the pool, and the other branch leading to a large fountain at one corner of the pool. Each of these two branches is equipped with a direct reading meter. The fountain has one central stream which throws a jet of water about forty feet high, and four smaller jets around the perimeter of the fountain basin which throw their streams diagonally in towards the center. The fountain basin empties over a low rock fall into the pool with a miniature rustic bridge over the fall.

Inlet Water Sprays

The water is supplied to the pool through nine two-inch inlets evenly distributed over the entire pool bottom. The inlet fittings have female threads so that a length of two-inch pipe may be screwed into each one, cut to such a length that the top is just at the surface of the water. On gala occasions when special illumination is provided these pipes are set in place, and provide nine beautiful jets of water rising thirty or forty feet in the air. Naturally, they are not left in place when the pool is to be in general use by the club members. There are also two four-inch inlets at the shallow end of the pool, near the bottom. Along the sides, at intervals of thirty-two feet are twelve surface sprays which throw a fan shaped spray of water out over the surface to almost any desired distance. Every inlet to the pool is separately valved, including the surface sprays, the valves being set in valve boxes below the surface of the stone walk around the pool. The covers for these boxes are loose stones with ground edges to make a tight fit. All the supply inlets to the pool are fed by the ten-inch line previously mentioned which makes practically a complete circuit of the pool.

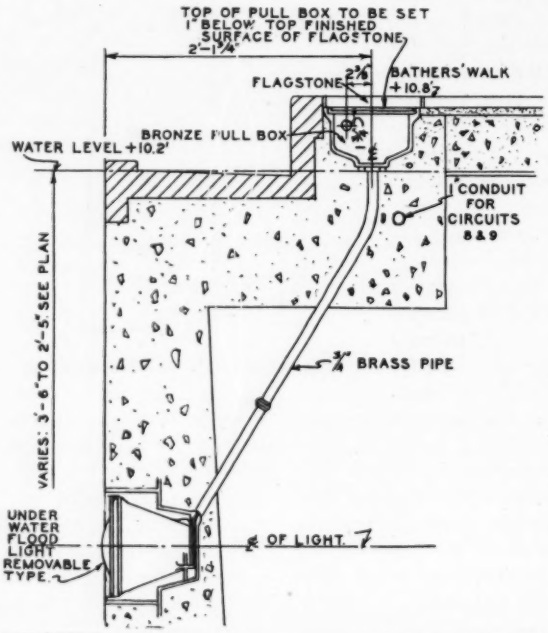

TOP OF PULL BOX TO BE SET 1" BELOW TOP FINISHED SURFACE OF FLAGSTONE
2'-1¾"
FLAGSTONE
2¾"
BATHERS' WALK +10.87
BRONZE PULL BOX
WATER LEVEL +10.2'
CONDUIT FOR CIRCUITS 8&9
VARIES: 3'-6" TO 2'-5" SEE PLAN
¾" BRASS PIPE
UNDER WATER FLOOD LIGHT REMOVABLE TYPE
℄ OF LIGHT

Fig. 5—Divers who want to "stay on the bottom" find it flood lighted. Bulbs for underwater lights may be let down and drawn up through the pipe running up to the pull box without draining the pool or pulling the switch

The scum gutter is of an unusual design, as may be seen from the drawings, and is lined to a point well below the water line with terrazzo of a greenish color, giving a very pleasing effect. Care was taken not to give the terrazzo too high a finish and thus make it slippery. The scum gutter is continuous except for the twelve pedestals which contain the surface sprays and the pole sockets with electric receptacles. The surface sprays are located with their centers two inches above the water line. The scum gutter drain fittings are three-inch, and connect into a six-inch scum gutter drain line which circles the pool, emptying back into the suction tank previously described.

Children's Wading Pool

A children's wading pool, also of concrete, and with a copper umbrella fountain in the middle, is located at the north end of the main pool, the supply being taken off the main ten-inch supply line. Also at this end of the pool is the compulsory shower bank through which all bathers must pass before entering the pool. The shower heads are arranged so as to wet the entire body, but not the head. Three vacuum cleaning outlets are located along the west side of the pool about two feet below the surface of the water. They are two and one-half inches in size.

In order to keep the water in the swimming pool at all times bacteriologically as pure as drinking water an electro chlorinator, has been installed in a partitioned corner of the filtration building.

This equipment produces available chlorine from salt in the form of sodium hypochlorite. It is electrically controlled and the solution dosed accurately in desired amounts throughout the entire operating period. Accuracy of control has made it possible to maintain a residual in all parts of the pool of .2 p.p.m. regardless of variations due to bathing load, temperature, degree of sunlight and dissipation of some residual due to the fountain display. Evenness of distribution is not only due to numerous well placed inlets but also in large degree to the very nature of the sterilizing agent itself.

The electrolytic solution of sodium hypochlorite is stabilized and can therefore circulate to all parts of the pool without breaking down quickly, thus effecting a saving in the use of the agent and completely eliminating the necessity of heavy dosage at the inlets and a high residual at those points in order to obtain a definite residual at the far points.

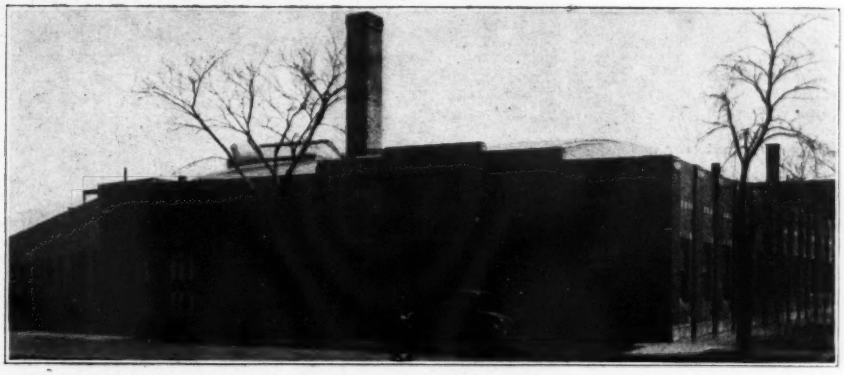
In addition, the solution is neutral and non-irritating to swimmers. As it is neither acid nor alkaline a high excess residual could be built up if desired to a point which would make the average pool using liquid chlorine decidedly unpleasant.

As regards the piping in general, all lines were graded to low points so as to be drained easily in winter. The fourteen-inch drain and the twelve-inch suction lines are connected with bolted joints. Most of the fittings were of the drainage type. The piping contractor was J. B. Foster, Jr., Mt. Kisco, New York.

Under Water Lighting

One of the most interesting features of the entire operation is the under-water electric lighting. This was accomplished by installing in the side walls of the pool sixty underwater flood lights, each light containing one 400 watt flood light. One of the special features of this type of underwater light is that it is removable from the front, and can be lifted to the pool walk-way and re-lamped without break-

(Continued on Page 128)



Front view of the H. P. Reger & Company establishment, Chicago, Ill.

Shop Methods *That* Save Time *and* Money

LIGHT, space and system are the three dominant features that characterize the operation of the H. P. Reger & Company establishment at 1501-7 East 72nd Place, Chicago, Illinois.

This entire establishment, from office and drafting rooms to shop, is conducted on the theory that good lighting is conducive to good workmanship; that proper ventilation and pleasant working conditions are essential to the maximum of efficiency and productivity in a group of employes, a theory whose application has proven profitable to the Reger company in many ways.

The building which the firm occupies has been especially planned for the Reger company and naturally has been laid out with the idea of efficiency uppermost in mind, as well as the desire to utilize space and light to the best advantage. The structure is one story high, of brick and tile construction, and covers about a quarter of a block in ground space. To the side and rear of the building runs a railroad spur, where all freight shipments of any size are received.

Approximately one-third of the building is given over to the showroom and offices. This division of

View of showroom; executive and clerical offices are at left and offices of draftsmen and estimators are at right

A tier of racks used for storing fittings

the establishment is so arranged that the showroom is in the center and is paralleled on one side by the executive and clerical offices and by the offices of the draftsmen and estimators on the other. Each of the latter is separated from the others by glass partitions, rather than being grouped together in one large room as is so often the case. This arrangement, it has been found, adds materially to the general efficiency of the department.

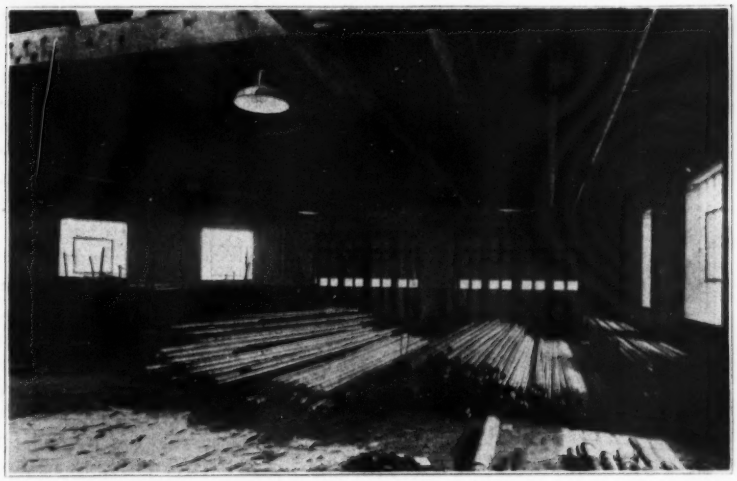
The shop is a model of roominess and convenience. Racks and bins are ranged along the walls and down the center, with wide aisles providing easy access to every tier. Most all plumbing and steam fittings are carried in full lines, but the larger fixture items are not stocked, as such equipment is ordered from the supply houses as needed.

The bins placed against the walls are for wrenches, ratchets, dies, bench vises, pipe cutters and surplus tools of all kinds; while the racks grouped away from the walls are reserved for fittings. The various kinds of fittings are kept, according to size, metal, weight or style, in sections set aside for that particular item. There are sections for washers, valves, steam gauges, floor drains, flanges, etc., with bins for each different size. Another section is stocked with malleable, galvanized and brass fittings, and still another section with cast iron and black nipples. Everything is placed more or less in the order of its usage; those items that are called for most frequently are kept in racks nearest the loading position so that loading of trucks is done in minimum time.

The racks, which are located opposite windows to get the full advantage of all light, are built just high enough that a man can reach to the topmost bin without the aid of a stepladder. The signs on the bins were originated especially by the Reger company, and bear not only the size marking but a pictorial illustration of the bin's contents. They can be conveniently lifted out of position and moved to another bin when it is desired for any reason to remove fittings from one bin to another.

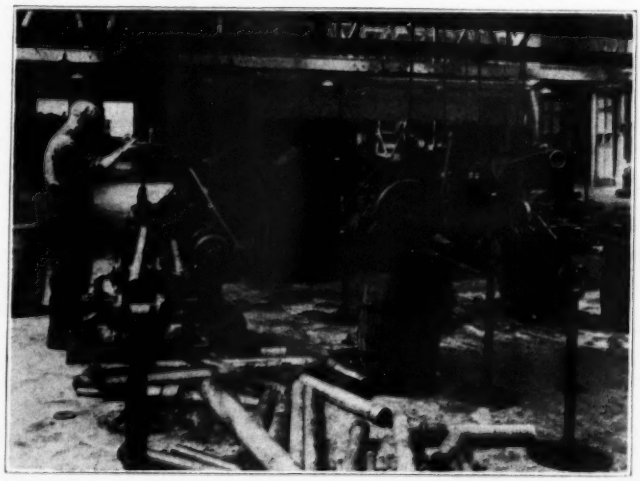
Two more views of material racks. The bins along the wall in the lower picture are for tools

Cutting off a portion of the shop proper, with an entrance off the street on which the building faces, is the company's own garage, providing storage for several larger motor trucks, as well as considerable gear used for large building operations. Just inside the entrance to the shop from the garage are storage tanks for gas and oil to supply the company's fleet of trucks.



A shipment of pipe that has just been unloaded from a freight car on the siding beyond the rear doors

At the rear of the shop, folding doors open out upon the freight car siding. Shipments of pipe are unloaded here with the assistance of pipe rollers, and ranged in sizes just inside the entrance. From here they are picked up by an overhead track and carried to the power driven pipe cutting and threading machinery to be cut into different lengths and threaded, ready for use on jobs to which they are consigned. The overhead tracks enable one man to handle heavy sections of pipe by himself. After the pipe is cut and threaded, it is moved to a position beyond the machines where it can be loaded on the trucks that come into the shop through the garage entrance.



The battery of power machinery will take pipe sizes from one-half inch up to eight inches. All surplus bald head pipe is saved and converted into nipples, resulting in a considerable economy. This bald head pipe that once sold at $8 per ton now realizes approximately $126 per ton through conversion into nipples of various lengths.

The matter of securing materials and supplies for contract or jobbing work and ultimately getting them to the job on schedule is handled almost automatically. In the first place, when the estimate on materials needed has been approved and the contract closed on a given job, a form is filled in showing what supplies are required. These are bought and listed to be issued to the job as the work progresses.

All orders are filled out in duplicate; the first, of course, goes to the supply house, and the other is filed in the order book, later to be transferred to the cost book. All extras are made out on a form designed for that purpose and debited to the job on which they are used. When material is

Above are the power driven pipe cutting machines while at the right are the threading machines. Large sections of pipe are carried to the machines by overhead tracks

A view of the clerical offices flanking the showroom

shipped out of the shop to a job, the shop is credited on a material sheet and the job is debited. The reverse is true when material is returned to the shop.

However, let us presume a job to be under way in some part of the city. The job foreman, checking the progress of his work, ascertains what materials will be needed for the following day's work and sends in an order to the office. An order clerk makes out an order sheet and turns it over to the shop, where it is filled out and got ready for delivery. A company truck picks up the order at 7:30 the next morning and has it on the job, to which it has been consigned, by the time the journeymen or steamfitters have checked in for the day's work. For all outside operations where large fixtures and fittings are being used, the supplies are ordered from the supply house, thus saving storage space and double handling. The material requirements for these jobs are kept on file and are sent to the supply house on schedule through an automatic system of follow-up.

When requirements for pipe are heavy and work is being rushed on a large operation, this material is cut and threaded at night and loaded on the trucks ready for delivery on the following morning.

Another item of interest is the system of workmen's time sheets. This form, when filled out, shows the amount of time by hours and days that a workman has spent on any one job, enabling the company to calculate the complete cost of labor on that particular contract. The labor cost is finally transferred to the cost book, along with the expenditure for materials, where the total cost of completing a job can be seen at a glance.

Priming Water Connnections for Pumps

By W. H. WILSON

PRIMING water connections for pumps are sometimes cross connections between different water supplies.

Many industrial plants using water for furnace cooling purposes, flushing plumbing fixtures, fire pumps and other items which do not require pure water, take their water supply from ponds, harbors, small rivers and lakes that are contaminated with mill waste, vegetation, or similar pollution.

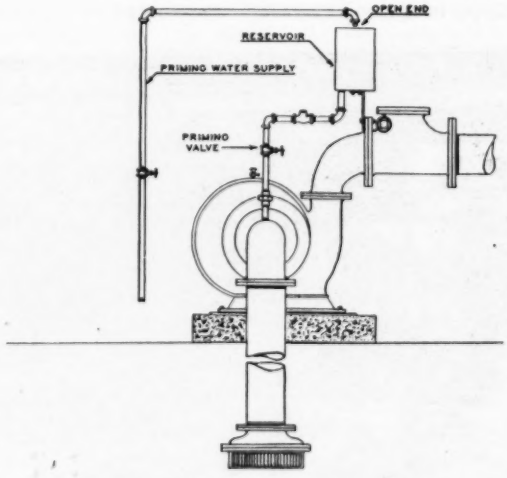
City water is used for drinking and washing purposes and a cross connection between these water supplies, although often installed, should never be permitted.

There is always the possibility that it may be carelessly left open. Frequently they have been known to be leaking for long periods of time.

It is common practice to have a city water connection for priming the fire pump and the service water pump. In case these pumps should fail and the service water pressure go down, the city water priming connection is used for priming the pumps prior to restarting.

It is not an uncommon occurrence to find these priming valves, when they are installed as a solid pipe connection between these two different water supplies, leaking or carelessly left partly open. The pressure carried on the service water lines is in many cases greater than the normal city water pressure, and the priming valve leaking or open will permit the contaminated water to flow back into the city water mains, which may cause serious results.

In order not to have a solid pipe connection between the city water and the contaminated water and still permit the city water to be safely used for priming purposes, the accompanying illustration shows a connection that is open to the atmosphere and prevents the contaminated water from backing up into the city water piping system which would carry it to fixtures, where it would be used, unknowingly, as pure water.

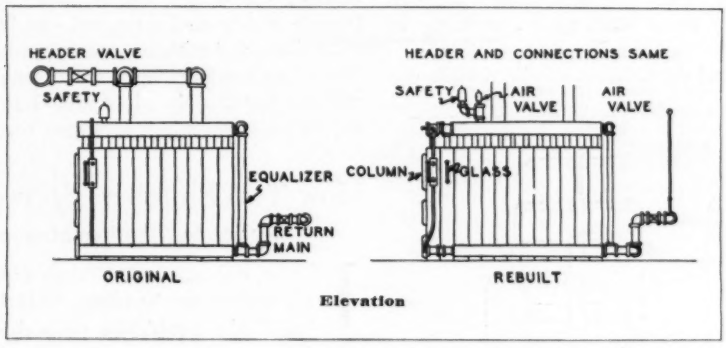


Priming water connections for pumps

It is simply a reservoir placed above the pump and connected to the pump in such a way that the water will pass into the interior of the pump when the priming valve is opened. A check valve is placed in this pipe connection so that when the pump picks up the water it will not cause water to be blown out of the top of the reservoir before the priming valve can be closed. This type of connection can be used on centrifugal, rotary or reciprocating pumps. The priming reservoir is filled by using a pipe connection from the priming water supply, terminating above the reservoir, the open end in plain sight of the pumping station attendants.

The capacity of this reservoir, as well as the size of the priming water supply line, will be governed by the size of the pump.

A Curious Water Line Experience



Elevation

By J. H. WALKER

THE designing engineer has had a number of boiler installations give trouble due to loss of water or false gauge glass readings, but until recently never had one traceable to air in the boiler, as the following experience would seem to indicate.

At one of the large private schools near Baltimore there were two, cast iron, sectional boilers of well known make and of manifold type, supplying a steam heating system in several buildings. The boilers were rated at 4,900 sq. ft. each (old rating) and supplied a total of close to 8,000 sq. ft. of direct steam radiation; some connected one pipe and some two pipe. Each radiator and the end of each steam main are provided with plain air valves. In spite of the small margin between the boiler rating and the connected load the plant was operated more or less satisfactorily and with a steady water line.

An additional building was planned, having a total of 1,400 sq. ft. of direct radiation. As the present boilers were old and showed signs of wear and tear, new boilers were recommended but to save money this recommendation was turned down and the alternate of adding two additional sections to each boiler accepted. This brought the total boiler capacity up to 11,800 sq. ft. which was as proportional to the new load as the original boilers were to the original load. Therefore both the designing engineer and the operating engineer of the plant felt reaonably safe in the matter of boiler capacity and did not anticipate any trouble. In the end this assumption was proved out but not until all hands had literally sweat blood on account of inability to hold a steady water line in the boilers, for some time after the plant was completed.

During the winter the new building was constructed and from time to time as rooms were completed the radiation was set and connected. Due to the necessity of keeping the boilers in operation continuously the additional sections were not added until the Easter holidays, at which time two sections were added to one of the boilers. During most of the winter the original boilers were forced to carry the original load and considerable additional load due to the temporary radiators in the new building. This they did and with fairly steady water line.

After the one boiler had been increased more radiation was added in the new building until nearly all of the radiation contemplated was in use; all being carried by one original boiler and one enlarged boiler. During the period between Easter and the close of the season the boilers carried this increased load and with steady water line.

During the summer the two additional sections were installed on the other boiler and the boiler itself tested for leaks. Everything seemed all right and as the entire heating load had been carried by boilers smaller than contemplated no thought was raised but that the plant in the fall would function better, due to the enlarged boiler. The plant was accordingly accepted.

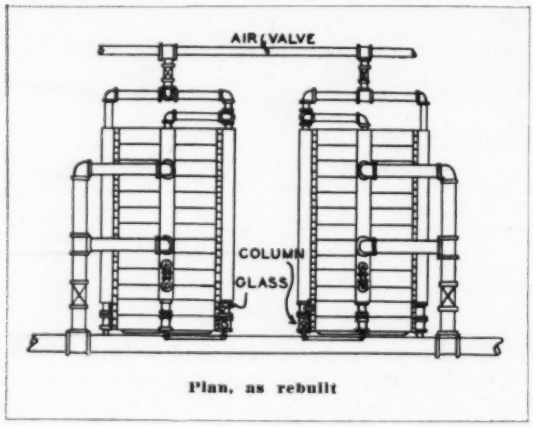
Upon starting the plant in the fall there arose loud cries for help from the school due to trouble with the water not staying in the boilers. At times the water would disappear entirely from both gauge glasses, and at others would fill one glass and empty the other. The engineer stated that this had been going on for about a week and that it was so serious that the fireman was threatening to leave as he was afraid that the boilers would crack and scald him.

A check up and test showed this to be the case but a very baffling one as the plant had operated all right during the latter part of the last winter. After some thought it was recalled that the entire plant, including the two sections added during the summer, had not been operated as a whole; therefore the trouble was in the two new sections, although the sections had been carefully examined before setting and were found all right. The designing engineer did not think this was the cause of the trouble but seemed inclined to think that the water columns were giving a false reading due to the manner of connecting.

The water columns were of the old type, i.e., cast iron

bottles with try cocks and gauge glass on same and connected to the boiler headers by 1-inch pipe. The water columns were connected at the front sections. The connections were moved to a point on the manifolds near the third sections. This did not better conditions any and to get an accurate check on the water level in the boilers an auxiliary gauge glass was connected directly in the boiler section. The water level varied violently in both glasses.

Time was going on and the solution of the trouble did not seem to be in sight, so for some unknown reason which he could not explain, the plant engineer tapped the low return main at the rear of the boilers and installed an air valve on a pipe extension above the boiler water level. This passed an abnormal amount of air. The water at this time disappeared entirely out of the original gauge glasses and seemed to reverse the circulation in the auxiliary glasses which were put directly in the boiler sections; i.e., large bubbles of foam and water were coming down the glass from the top connection.



Plan, as rebuilt

This was directly contrary to the normal direction of circulation in the boiler and seemed to indicate air travelling against the flow of water and working to the air vent on the return main. Thinking that the air would soon work out, the boilers were run for several days; but such was not the case and the boilers continued to be operated with no water showing in the glasses, except at such times when practically no pressure was on.

As the boilers in all this time had not cracked or blown a plug, and the rapidity with which water showed in the glass when the steam pressure was reduced, led to the belief that the boilers were not losing water, but that the gauges were not indicating the true level. How to make the gauges read true was the problem.

Inasmuch as the air valve on the return main had somewhat affected the operation, the suggestion was made that a large air valve be installed on each boiler supply header. This was objected to on general principle, and that any air in the boilers would be carried out with the steam and vented from the radiators and air valves on the mains. After considerable thought and the desire to try anything once to see if the water line could be made steady, the air valves were installed in tees directly below the safety valves.

After these valves had been in operation about fifteen minutes the water line in each boiler and each glass became steady and remained steady under all operating conditions, and with any steam pressure up to ten pounds. The plant has been operated throughout the past winter without any trouble. It would seem therefor that the air valves on the headers corrected the trouble.

How Two Plumbers Solved Six Problems

Replies to "Mathematics of Plumbing"

IN the February 22d issue we published on page 55, under the heading, "Mathematics of Plumbing," six problems on subjects of interest to plumbers. A number of replies were received, and these have already been discussed. Two more sets of answers have now been received, from J. Davenport, St. Johns, Newfoundland, and from "B. D.," Buffalo, N. Y.

A tabulation of the results obtained by the two men are shown herewith.

The results of the two sets of answers are identical except for minor differences in two of the results called for in Problem 6.

Mr. Davenport, being a Canadian, went to the pains of figuring contents not only in U. S. gallons, but also in imperial gallons. There is quite a considerable difference between the two.

The second problem was worked out by "B. D." in two different ways, also graphically by the method of triangulation, which method was shown in our previous discussion of the problems.

Name	Prob. 1	Prob. 2	Prob. 3	Prob. 4	Prob. 5	Prob. 6
Davenport	313.7 gals.	2½ in.	4½" radius	3/10" per ft.	188 sq. ft.	107.4 gals. 897.5 lbs. 22.51 lbs.
"B. D."	313.7 gals.	2½ in.	4½" radius	3/10" per ft.	188 sq. ft.	107.4 gals. 895.2 lbs. 22.56 lbs.

While giving the pitch as 3/10-in. per foot in the fourth problem, he states that this is close to 5/16-in., which measurement would be more practical for general use.

Mr. Davenport shows a neat layout of the tank lining problem, and in this problem "B. D." makes an additional allowance of 5 1/3 sq. ft. for lapping and top edges. We do not recall that any other one has made any allowance, although each has called attention to the fact that such an addition should be made.

"B. D." states that the formula he used on Problem 6, to find the total number of gallons in a plumbing system having different sizes of stacks, was

$$D^2 \times .0408 = \text{gals. in 1 ft. of pipe.}$$

Using this formula and multiplying by the length of each size of pipe, the result is obtained more quickly than by any other method we know of. We should state that D in the above formula refers to diameter.

PLUMBING & HEATING MERCHANDISING

HERE is one of the most practical, informative and helpful merchandising stories about home modernization we have been able to secure

February 1, 1930.

Mattice Heating and
Plumbing Co.,
1424 Texas Street,
El Paso, Texas.
Gentlemen:

I take pleasure in recommending your oil burner for cleanliness and complete convenience in supplying an even and dependable heat for the home at a very reasonable cost. Its automatic features are dependable and safe. I consider it the last word in freedom from worries about our heating plant, and the coal and ash nuisance in the house.

Very truly yours,

(Signed) Mrs. S. E. Black

How to Use

Customers
Salesmen
Fuel Costs
Testimonials

in

Making Oil Burner Sales

ONE day a man came into the office of George H. Mattice, owner of the Mattice Heating and Plumbing Company, El Paso, Texas, and announced that he was a painter. "I'm out here for my health," he explained, "and I'm picking up small jobs here and there to tide me over while I'm here. Is there anything around here you need painted?"

"I guess not," Mr. Mattice replied. "I don't know of a thing I own that needs painting."

"Well, would you mind stepping outside of your shop for a minute with me?" the stranger said. "I'd like to show you something." Outside the building he led the curious Mattice some twenty feet out into the street, where they would have a full view of the building. "Now have an impartial look at that shop," he urged. "Don't you believe that a fresh coat of paint would make a world of favorable difference in its appearance?"

Mr. Mattice declares that he was frankly surprised at how really faded his building was. All these months he had been looking at it, but really he had not been seeing it. It was too close to him for him to see it as others saw. But now this itinerant painter had shown

him the place through outside eyes. "You're right—it does need painting!" he agreed; "What'll you charge me?"

In a jiffy the deal was closed. Doubtless the painter collected his fee and forgot all about the incident in a couple of days. But not so with George Mattice.

"Right there I learned one of the most valuable lessons in selling that I ever came upon," he declares. "That fellow made a sale because he made me see that I needed something which I did not know myself that I needed. If he had gone out when I turned him down, I might be going along yet, blissfully ignorant that my building was dirty and faded and badly in need of paint.

A Profitable Lesson

"I have been proud of that purchase ever since, because the man who sold me not only gave me my money's worth in the work he did, but he rendered me the additional service of pointing out an extreme need that I probably would not have seen myself for months or even years. He helped me to make money, aside from giving me good workmanship.

"In selling oil burners I often stress this instance before my salesmen. I point out that the best sale is that which a man creates through pointing out the need of the burner to the man who does not know that he needs it. Such a sale not only makes good money for us because it comes without competition, but it renders a distinctly greater service than when we sell a man who knows that he needs a burner and is out looking for one."

This is one of several policies and plans which have enabled the Mattice Heating and Plumbing Company to build up an outstanding profitable oil burner business, especially in view of the fact that the climate and local conditions of El Paso do not encourage oil burner business. The climate is warm the year round; and although the city is estimated to have a little more than 100,000 people, more than 60 per cent of this represents a very low buying power.

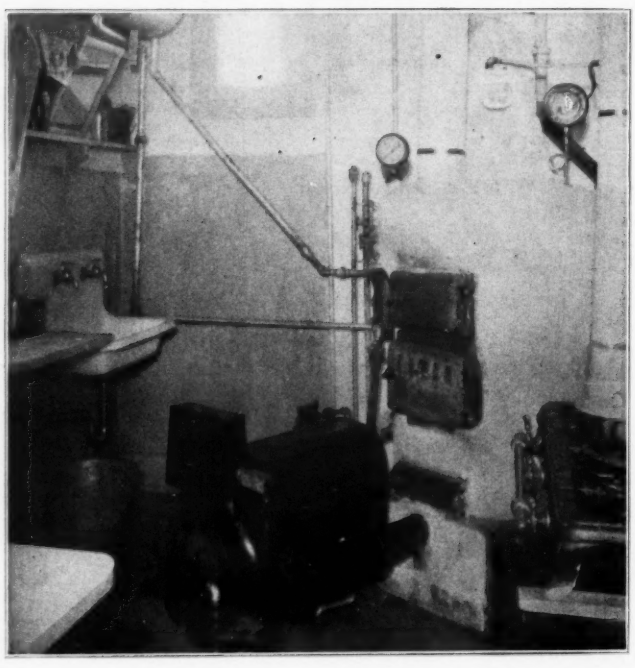
Since taking on the agency for an oil burner less than four years ago the company has sold between 75 and 100 installations in the city of El Paso alone; and the firm covers all of New Mexico and much of the western part of Texas.

"The chief reason we sell oil burners is, we push them consistently," declares Mr. Mattice. "And the reason we push them is that they represent a mighty nice profit. We make a good profit on burners; and our cost of selling and overhead is lower than the average for the rest of our business. Why shouldn't we push the line?"

There are three broad, general factors entering into the success of this company in the sale of this line. These are:

(1) Employment of men who know oil burners, and keeping them outside the store, after business all the time.

(2) Keeping letters and other



One page out of the salesmen's loose-leaf book, showing an oil burner installation

One of the letters in the oil burner series—

MATTICE
HEATING AND PLUMBING COMPANY
1424 TEXAS STREET
EL PASO, TEXAS

Dear Sir:

Getting out of bed on a cold winter morning is something no one enjoys--young or old. Even a servant is not as vigilant, as accurate and as dependable as a room thermostat, to give you the amount of heat that you want--to the DEGREE. It gives you the heat you want even before you know that you want it. An even temperature day in and day out--never failing.

Such comfort as this, is the result of this mechanical age. Oil heat is as far from the old coal and shovel heat as your car is from its 1910 model. The 1910 model would run, yes, but how differently from the car of today. The (.....) gives you the best in modern engineering.

Comfort in your home means added happiness, and the home is just the place where comfort cannot be weighed with cost.

Let us show you one of our installations in the city.

Very truly yours,
MATTICE HEATING & PLUMBING CO.
By

direct mail advertising going out to help the salesmen, by paving the way for them.

(3) Using every customer as a reference in the sale of new installations.

Mr. Mattice thinks possibly the last of these three factors is the most important, though he hastens to stress that without the other two the third could not be made as effective as it is.

Using the Customer

The company has a complete file of every customer who has bought an oil burner. This file not only shows the name and address of each customer and when he bought, but a complete history of the installation. Periodically the company makes a supply of copies of the list of customers and their addresses. These form a vital part of the selling campaign and provide the salesmen with their most vital sales ammunition.

When a salesman calls upon a possible prospect, an important part of his sales talk is about how satisfied all users are with their installations. He backs up this assertion by supplying such prospect with a copy of the complete list of customers, their addresses and telephone numbers, and by asking the prospect to call any or all of them and ask what they think of their installations.

When the company sends out sales letters, the list of users is nearly always mentioned in them, and sometimes the recipients of the letters are asked to send for the list of users. In some letters several users' names are mentioned and the recipients are asked to consult them as to the service of the plant.

Mr. Mattice cites many important sales through the use of this customer list. There was a banker, for example, who had been a prospect for a burner installation for a long time. His home was one of the finest in the city and obviously it would run into considerable money if the job could be landed. The firm had sent him several letters and a salesman had called several times, without outward result.

Finally Mr. Mattice went to see the prospect himself. The chief objection advanced was that the idea and product were rather new.

MATTICE
HEATING AND PLUMBING COMPANY
1424 TEXAS STREET
EL PASO, TEXAS

Dear Sir:

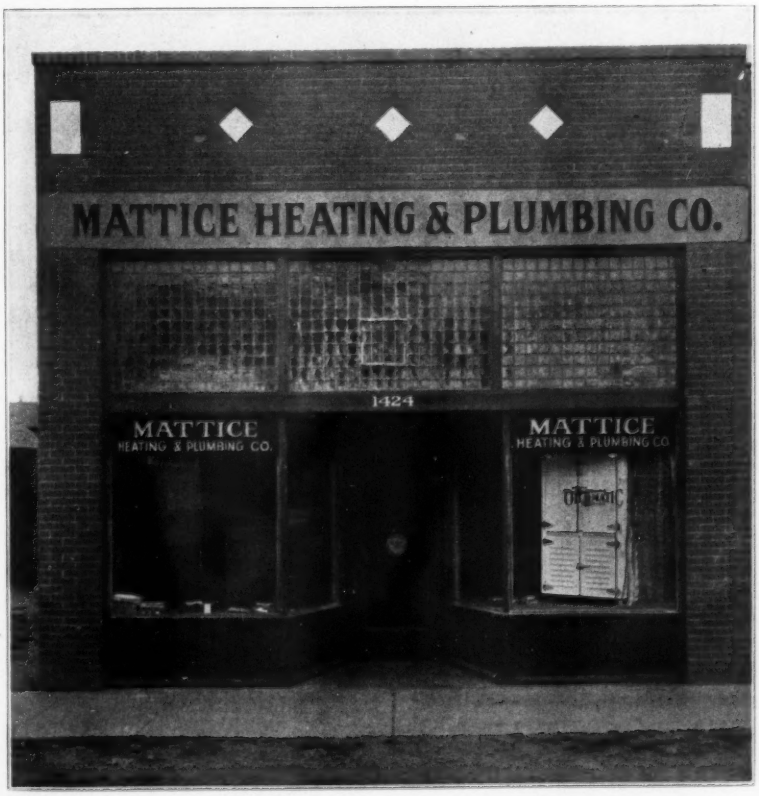
We have estimated that there are approximately 500 people in El Paso who can afford the comfort and convenience of an (.....) oil burner. We have placed (.....) in a number of these 500 homes; a large number of the others would be enjoying (.....) heat if they were fully acquainted with the facts, guarantee, terms, etc.

Now if you do not own an (.....) this winter, we want to be sure that it is because you have investigated oil heat and do not want, one rather than going without a burner because of inadequate information. For instance, Harry Shipley writes that although skeptical at first he now feels a debt of gratitude to the salesman who converted him to (.....) heat.

If you are interested in getting away from the trouble and inconveniences of coal, and want more information on the (.....) oil burner, drop the enclosed stamped card in the mail.

Very truly yours,
MATTICE HEATING & PLUMBING CO.
By

One of the letters stressing the value of the oil burner



View of the exterior of the Mattice store

Would it stand up, and if not, what about service on it? Mr. Mattice assured him that the burner long ago had proved its lasting qualities; and as for the service that he could expect, he turned over to the banker a complete list of the firm's oil burner customers. "Call any of these you wish," he instructed. "Ask them anything you like. You're interested in service. I would suggest that you ask them what sort of service they have been getting from us."

As the banker explained the following day, as soon as Mr. Mattice left he called three customers at random from the list. He asked each of them what sort of service they had been receiving on their oil burners. Their replies evidently were quite convincing, for the banker voluntarily telephoned his order the following morning.

"Of course, before the plumber can use his customer list like this

he must be mighty certain that all are satisfied," Mr. Mattice explains. "Service and consistent follow-up have done that for us. By making it a point to satisfy every customer, regardless of cost or inconvenience to us, we are glad to turn over this list to anybody; and the list is positively complete. It has not been culled for the convenience of the sales department."

Of the more than seventy-five installations which the company has made in El Paso, all on a money-back guarantee of positive satisfaction, all still are in use but one. Even this one has not been taken back; and the customer still is carried on the list of references. He merely got the notion not long ago that he wanted to try heating with the new natural gas which had just come to El Paso; and he wanted the oil burner removed. He first suggested that the company buy it back from him; but Mr. Mattice wisely mentioned that there was no way of knowing that the customer would be pleased with his gas installation. If he should not be, then he would want the oil burner back; and in view of that situation, would it not be more practical for the customer to leave the burner conveniently near in his basement, covered, of course, for protection, in case he wanted it again next winter? The customer is following the suggestion. Mr. Mattice feels positive that he is going to be called in to re-install that burner before the winter is over. If so, that will bring the score of customer satisfaction back to 100 per cent again.

Servicing Installations

When an installation is made, a service man instructs the customer in its operation. After a few days, he goes back and sees if the customer is handling it right. After each visit he stresses to the customer that at any time the unit is not functioning exactly right, he should call the company and ask for service. The company gives a year's service with each sale; but the estimated cost of that service is figured in when establishing the selling price of the burner.

This fact is not necessarily kept from the customer. To the contrary, he is told that he is paying

MATTICE
HEATING AND PLUMBING COMPANY
1424 TEXAS STREET
EL PASO, TEXAS

Dear Sir:

Harry L. Hussmann says:

"My (.....) is giving wonderful results--every home ought to be equipped with this money making, convenient device."

This is what one of our owners said, whom you know must have been prompted by genuine appreciation for (.....) comfort to have favored us with such a recommendation.

Every one of our owners are satisfied, which tells you more than we can say. You no doubt know some of them and we would be glad to give you a list that you might ask them what they think of (.....).

A request from you and we will look at your heating plant and give you an estimate on an (.....) burner.

Very truly yours,
MATTICE HEATING & PLUMBING CO.
By

How to use the testimonial as part of a sales letter

for whatever service he needs, whether he gets it or not; and that if he needs it, he should by all means ask for it. Mr. Mattice declares that he much prefers to make a lot of needless service calls to missing one which should be made, in view of the fact that he uses his complete customer list for references.

During the winter when the average unit is in pretty steady use, the company maintains 24-hour service; and this fact is made known to all customers. Customers are asked to call Mr. Mattice's home after working hours when in need of service.

He has arrangements with his special oil burner service man to meet these calls at any hour of the night. The man drives home each evening a service truck with all the essential repair equipment in it. When a call comes to Mr. Mattice for night service, he simply gets in touch with the service man, and guarantees the customer that he will have the man at his door within 20 minutes! If it happens that two calls come so near together that the service man is not able to handle both, Mr. Mattice answers one himself.

"When a plumber makes up his mind to take on a line of oil burners, he had better make up his mind at the same time to render service at all costs, whenever it is needed. Oil burners are still new enough that people are more or less skeptical about them; and anything that they do not know about, they want to be certain that they can get help with it when they want such help," Mr. Mattice emphasizes.

The company keeps one or two salesmen employed the year round. They draw a straight commission of 10 per cent. Mr. Mattice prefers to hire a young man who knows nothing about either the burner business or selling, and train him to sell according to the Mattice standard.

"I find that the greatest trouble with the average salesman, trained as such, when he comes here to sell burners, is that he cannot forget that he is a salesman," declares Mr. Mattice. "I think that is the greatest stumbling block in the way of men who sell today. They can't forget that they are salesmen, and go ahead and tell prospects about their line in a commonsense, human interest way. They keep reminding themselves that they are salesmen, that they've got to *sell* the prospect something. And that keeps the prospect on his guard. When a salesman tries to *sell* something, he betrays his thoughts in his talk. The prospect realizes that he is being *sold* something, and he is doubly cautious than he would be otherwise. I find that the less a man uses typical salesmanship in this business, the better he gets along.

Correct Salesmanship

"I want my men to learn all there is to know about our burner. I don't give a whoop whether they know even the name of any other or not; but they must know this one from all angles. I want them to know just what it will do under various conditions, why certain homes and commercial buldings ought to be using it. Knowing that, all they have to do is to point out to these prospects why they need the burners. That is not salesmanship; it is merely service—the sort of service the broken-down painter rendered me when he made

me realize how badly my store needed paint."

One common weakness among men who sell, Mr. Mattice finds, is that they do not ask the prospect often enough to buy. "Many, many cases I have seen," he explains, "where the prospect was all for buying, but the man simply couldn't close him. He had him sold, but he couldn't get his name on a contract. The trouble was, they simply were afraid to ask the men to sign. I try to train the salesmen to follow the rule, 'When in doubt, ask 'em to buy!' There is less danger in asking too many times for the prospect to sign up than in failing to ask him at the right time."

Mr. Mattice cites an example of how he himself stumbled on this one point. He had a neighbor whom he had been trying to sell an oil burner for two years. Maybe it was because he knew him too well. At any rate, he simply did not ask the prospect at the right time to sign a contract.

Finally one evening he shoved a contract into his pocket, picked up his hat and announced to Mrs. Mattice: "I'm going over and sell a burner to him, or I won't be back tonight!"

The neighbor was a man who was very proud of his family. He did a lot for his wife and children, and he took pardonable pride in whatever he did. He had just bought them a new car, in the $3,000 class. He insisted upon taking Mr. Mattice out to the garage and showing it to him. He had recently bought his daughter a piano. He showed that, too; and had her play a few pieces.

"You're mighty good to your family," Mr. Mattice commented, calling the neighbor by his first name. "You have provided them with everything that money can buy, so far as comfort and happiness is concerned, save one thing."

"Well, what is that?" the prospect inquired dubiously.

"A modern oil burner," Mr. Mattice replied. "Here you have one of the nicest homes in town. It is furnished with the nicest equipment you could find; and down in the basement you have a pile of smutty coal and the heat it provides falls far short of the rest of the comforts of your home. Here is a contract for an oil burner. I want you to sign it, so I can install you a plant before cold weather sets in."

And the neighbor signed without protest! He would have done it a long time ago, Mr. Mattice is convinced, if he had really been asked to do so.

Mr. Mattice declares that he makes a greater net profit from oil burner business than any other line in the shop. It costs only 10 per cent to sell. Advertising amounts to no more than two to three per cent. The cost of overhead for all lines is 15 per cent; and this includes all service. Mr. Mattice declares that the overhead on oil burners is substantially lower than this average, although he does not know the exact figures because he does not keep the records separate. In view of these facts it is obvious that the profit in this line of merchandise is worth fighting for.

Testimonial Letters Sought

After each installation has been in long enough for the customer to give it ample test, Mr. Mattice writes the customer a nice letter, inquiring about whether or not the plant is proving satisfactory, and asking the customer for a frank expression as to what he thinks of the burner.

The replies to these letters form a vital part of each salesman's kit. The firm has a picture taken of every house in which an installation has been made. When a customer answers the letter and expresses his satisfaction with the plant, the company has a picture of the house printed three or four times on an equal number of sheets of heavy paper, similar to that which regular pictures are printed upon. The paper is perforated so that it will fit into a regular loose-leaf binder.

The picture is across the top of the sheet. Then directly below the picture the company copies the letter from the customer who owns the house pictured. Thus there is a picture of an actual installation and the opinion of the owner of the house, on a single sheet—unquestioned evidence as to its genuineness. Each salesman has dozens of such pictures and letters in his sales kit. He uses them freely.

A typical letter, in connection with this picture idea, is shown on

Mattice also sells electric refrigeration and displays various styles

the first page of this section. Each such letter bears the full name of the customer and gives the address, as well as shows the picture of the home where the installation was made.

The company uses excerpts from such letters in some of its sales letters to prospects, and finds the plan exceptionally effective in its convincingness.

The firm does house-to-house canvassing when there are not enough direct prospects for the salesmen to follow up; and it finds that this plan is a certain way of finding buyers, if followed consistently. However, during recent months, the company has not had the time to seek prospects in this manner for the reason that it secures ample leads from satisfied customers and through its newspaper and direct mail advertising.

The company has on its mailing list practically every potential prospect in the city. These names were secured from the city and telephone directories. When a name is found, however, it is checked for financial ability to purchase a burner before it becomes a part of the prospect list. This saves needless waste of advertising matter, time of the salesmen, and embarrassment to both company and prospect.

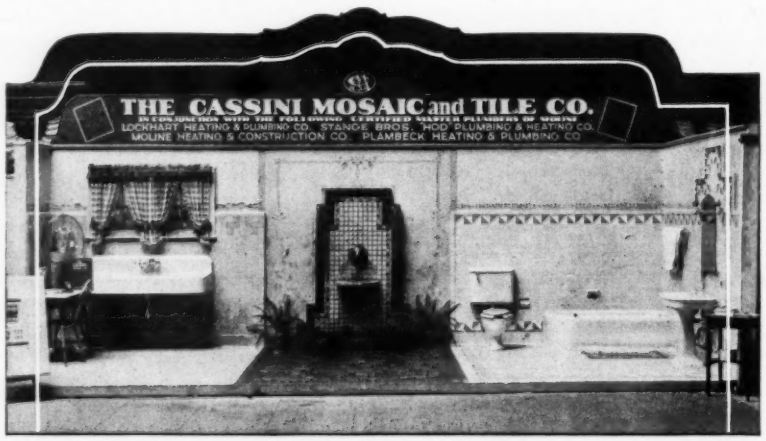
With a long list of potential prospects thus lined up, the company selects a specific number—as many as the salesman can follow up within a month—and sends them a series of letters. When such a list is segregated to work upon, the company sends never less than four letters of a series—sometimes as many as six. They go out a week apart; and each stresses the satisfaction other El Pasoans have experienced in the use of the oil burner.

Then immediately after the last letter of the series goes out, the salesmen start following up on them. The men call upon every person so letterized; and it is found that the letters not only bring in occasional direct inquiries, but invariably open the door of the average prospect for the salesmen.

When a man reports that he was refused an audience with any prospect on the segregated list, the company immediately writes the offender a personal letter, stressing more than ever the desirability of that person knowing what the oil burner will do for him, mentioning that the salesman was unable to explain his merchandise and asking for an opportunity for the man to go into the problem with the prospect. Mr. Mattice declares that this plan invariably opens a lot of doors which otherwise would remain closed against the salesman.

Mr. Mattice finds that it is also effective to stress the saving to be effected through the use of an oil burner in actual figures. He has calculated the cost of heating by coal, gas and oil, using the heat values in B.t.u.'s for coal, oil, and gas, to convince his prospects. The figures he produces are decidedly in favor of oil heating because coal is more expensive and oil less so in El Paso—a fact of which his alert selling instinct makes use.

Plumbing *and* Tile Display Draws Crowds


THE CASSINI MOSAIC and TILE CO.
LOCKHART HEATING & PLUMBING CO. STANGE BROS. "HOD" PLUMBING & HEATING CO.
MOLINE HEATING & CONSTRUCTION CO. PLAMBECK HEATING & PLUMBING CO.

The group of master plumbers of Moline, Ill., who, with the local tile company, worked out the display for the last "Pageant of Progress" found their three booths a strong drawing card; and the skill with which the booths were prepared is indicated by the fact that the display was awarded first prize.

Twenty-three thousand people saw the display and received literature which was stamped as follows:

Certified Plumbers
Moline Heating & Construction Co.,
Plambeck Heating & Plumbing Co.,
Lockhart Heating & Plumbing Co.,
Stange Brothers,
"Hod" Plumbing & Heating Co.
It Pays to Modernize

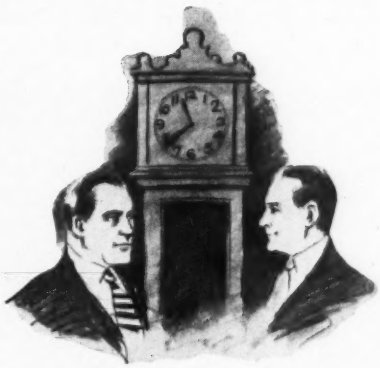
Following the pageant, the following news item appeared in one of the Moline newspapers: "The $25 cash prize which was posted by the Moline Legion post for the most beautiful display was awarded The Cassini Mosaic & Tile Co. of Rock Island, and the Certified Master Plumbers of Moline because of its color, layout, harmony, simplicity and balance. The booths were declared by the judges to have displayed business and utility value to both the home and the public."

The master plumbers drew lots in order to decide which evening each one would be on duty at the display, and on the last evening, all of the members were present.

The booths contained three different styles of tile floors, and walls. The fixtures were in orchid, and the floor and walls were in orchid tile of a lighter shade. All the accessories were placed in the tile walls. The kitchen sink was in canary yellow.

It was decided this year not to give out prizes as it was found, last year, that many people filled out the cards merely for the possibility of winning a prize, most of them not being prospects for plumbing.

Two Minutes that are All-Important



The Master Salesman shows how to use the first two minutes of the sales interview

IN SPEAKNG of the "approach" in selling, I am confining myself to the first few moments of contact between the contractor-salesman and his prospect. These few moments are all-important. They may very easily block any possibility of a sale, if not properly used, and may make future contacts with the prospect difficult.

Let me illustrate that point. And at the same time let me make clear what I mean when I say that before a salesman can really commence selling he must have reached some common point of interest with his prospect.

We will suppose that you are in your office and that, for the last half hour you have been meditating upon the fact that the report which your auditor or bookkeeper has laid on your desk, covering, let us say, your operations for the second quarter of the year, has surprised you. All along you had thought that your business was doing very nicely. The report shows you that, actually, it is "in the red." So you have been considering the need for a better set of records, having discovered that your own present system of bookkeeping is inadequate and, in fact, has been helping to hide facts rather than reveal them.

Wasting Two Important Minutes

A salesman enters. "Good morning, Mr. Jones," he says. He doesn't give you an opportunity to return his greeting. He rattles on: "I represent the XYZ Bookkeeping Forms Company. Do you know, Mr. Jones, that last year over half of the commercial failures in this country were due to poor bookkeeping records? Think of it—millions of dollars wasted because business men did not know that they were losing money, until the sheriff closed them up. It is said that only two out of every ten retailers have accounting systems really adequate to reveal the facts concerning their business operations. Now, Mr. Jones, in view of this situation, doesn't it strike you that just about the most important thing about your business is the system you have for keeping records? If other men have found that a proper set of records has enabled them to guide their business more intelligently, and to come out on the right side of the ledger, isn't it possible that an examination of your own system would reveal a need for improvement? Our company, Mr. Jones—" and he is off on a description of the system his company is offering for sale.

How far would he get with you? He enters your store at the most favorable moment (from his point of view) it is possible to imagine. He has something which you have already admitted to yourself that you need. But what has happened? He has used up those all-important two minutes without ever knowing whether or not you needed what he had to sell. He has given you no opportunity to express yourself. The mood in which he found you was, naturally, one of disappointment, even of discouragement. And no man willingly considers spending money when he is in such a mood. For all he knew, you might have had a better system than the one he had to offer. At the moment we will disregard what he said, although that is open to serious criticism, as we shall show later.

We are concerned here with how he said it. The first and most important criticism is that: He rushed too quickly into a presentation of his product. You may take it as a rule which has no exception that, even if you have an inquiry from your prospect for the product or service you have to sell, you can not rush into a description of it until you have some knowledge of just what caused your prospect to make inquiry. This is doubly true where the salesman calls on a prospect, as did this salesman, without an inquiry—made what is called a "cold" call. In such a case it is doubly necessary for him to get some idea of the type of man you are, what are your problems, and some hint as to just how what he has to offer can be of service to you. If he does not, how can he talk to you intelligently? You may be a far better accountant than he, or you may know nothing at all about accounting. Obviously, he couldn't talk to you in the same language in either case.

Suppose, on the other hand, that he had given you an opportunity to answer his own courteous "Good morning," instead of taking the bit in his teeth and running away with the conversation. The very manner in which you replied would have told him something about the state of mind you were in. Then he would, naturally, introduce himself, as representing the XYZ Bookkeeping Form Company. There is a very good chance that you might immediately remark that he was just the man you wanted to see—at any rate, you would certainly not cut him off. And, even if you didn't let him know immediately that you were in need of help with your accounting system, he would certainly change the substance of his remarks.

As given above, he practically implies that you must be among the retailers who are failing every year because they haven't good accounting systems. Well; it happens that you are at least in the class that doesn't have a good accounting system. But you don't want to be told that by a stranger. That is the principal criticism of

the substance of our salesman's remarks. They are, by implication, highly critical, and could hardly win a friendly feeling under the circumstances.

A Second Approach

But to get back to our second approach. The salesman has introduced himself to you. You haven't helped him any by telling him that you were actually considering a change in your bookkeeping system. So he goes on; and if he has some conception of the accounting system he is selling as actually being of service to those who buy it (for a price, of course), he will put the matter a little more modestly: "Frankly, Mr. Master, I am not familiar with your accounting problems. Perhaps you have a system entirely adequate for your needs. But we are serving so many businesses like yours, that it seemed worth while to drop in just on the chance that we could serve you."

Remember, he has something to sell which, at the moment, you do need. But note the sincerity of his approach. He hasn't rushed away in a description of his system, which may bore you, or may take up time which you cannot give him conveniently. He is giving you an opportunity to express yourself. He hasn't pulled the old gag about "happening to be in the neighborhood," and he hasn't implied that you are another of those unintelligent retailers who need prophets like himself to lead you out of the wilderness of error and loss. He claims for his system what is probably true—it has helped other retailers, a claim which you can have substantiated by asking for the names of those retailers. And he leaves it up to you to indicate whether or not you feel a need for his service.

You would be less than human if you didn't respond to that approach by beginning to tell him that you were thinking of making some changes in your accounting system. You'd be a little cautious, at first. You wouldn't show him the statement of your auditor. But you'd indicate the nature of your problem, and if he knows his own system, he will show you how to solve it. All that, of course, comes after the approach.

Getting on Common Ground

The important thing to note here is the fact that in this second case we have cited (and if you will observe the various salesmen who are calling on you, you'll find that they fall into two broad classes, very much like those described in the two cases we have given) the salesman didn't attempt to tell you anything about his system in detail until he had established a common ground between yourself and him—that common ground being your accounting problems. He didn't insist upon giving you all the details about what he had to sell until after he knew that there existed a need for it.

And let it be said here that even if you had sent in an inquiry to his company, and he had called in answer to that inquiry, he would still have to spend those first few moments finding that common ground. For this reason: Since you have made inquiry, he knows that you have some problem in mind. If he wants to be of service to you, he must know what that problem is. But you aren't going to open up immediately and tell him that you lost money in the second quarter of the year, in spite of the fact that you thought everything was quite otherwise. Before he can tell you a thing that will help you, without wasting his time and yours, you've got to feel some confidence in him. As your first few minutes of conversation go on, his replies will show you whether or not he knows as much or more than you do about accounting problems. When he has shown you that he does know something about these matters, you and he will settle down to details.

Now, apply that to your own selling efforts. You have received from a manufacturer, let us say, of water heaters, a card or a coupon which was sent in by some home owner in your neighborhood. You want to make the best possible use of that inquiry, by turning it into a sale. So you call at the address given.

When You Have an Inquiry

What are you going to say? Are you, like the case first cited above, going to greet the person who comes to the door and then plunge into a description of the water heater? Obviously not, if you want to make a sale. First you have to find that common ground of interest between yourself and the prospect. You must find out what caused the prospect to send that inquiry in. It may mean business of quite a different nature from that which you are led to expect.

For example, the address on the card may be that of a single family dwelling—a bungalow. But the inquiry may have been sent by the owner of that dwelling who has other properties. He may be interested in hot water requirements in a two- or four-family apartment building which he owns. He may know a great deal, or he may know nothing, about water heaters. He may want—or think he wants—anything from a side-arm heater to a submerged heater. And you can't talk intelligently to him until you know what he has in mind. Or he might have nothing but curiosity—perhaps a booklet was promised and he "thought" he'd like to see it.

So you adopt the course followed in the second case we talked about above. You have the card, or letter, or coupon, which the prospect has signed, in your pocket. You find your prospect at home. You introduce yourself, giving the name of your firm; and then you tell your prospect that the XYZ Heater Company has forwarded to you his inquiry.

At this point, the inexperienced salesman has a tendency to rush on and begin to praise the water heater in question. But the salesman of experience will pause after introducing himself and stating that he is there at the request of the heater company. It's up to the prospect, now, to do something, to indicate the reason for the inquiry.

If he does so only in general terms, saying, "Oh, yes, I was interested in the XYZ heater," he hasn't given you, the contractor-salesman, anything to go on. You still do not know why he was interested in the heater any more than you did when you received the inquiry from the manufacturer.

So you have to get that out of him. You may indicate that the

(Continued on Page 146)

Contractor Meets New Problem in Heating Aircraft Plants

Fig. 1—View of the ducts used in the blast system of heating in the administration building. It is designed so that the heated air will be driven to the outside walls where it is forced down the sides to the floor to offset any cold drafts from the windows

By WILLIS PARKER

WHEN one glances along the ceilings of the main office rooms of the administration building of the Alexander Industries, the parent company of the Alexander Aircraft Company, Colorado Springs, he sees what has been likened, by some of the workmen, to centipedes crawling the length of the rooms. It is the outlet of the heating and ventilating system.

Instead of installing an ordinary heating system, the company engineers sought, by means of proper installation and type to increase the efficiency of office and factory workers to such a point that two men would be able to accomplish the same amount of work as formerly was done by three. In other words, efficiency in aircraft building, selling and administration is dependent upon proper working temperatures and humidity to an extent only a little less than it is dependent upon labor saving machinery and the proper laying out of the production line.

In the factory building, unit heaters are used. The blast system, frequently referred to as the plenum system, is used in the administration building.

Let us consider the administration building first.

It is a two-story structure consisting of two wings—like an airplane, somewhat, on either side of a lobby which is 50 ft. wide. The lobby might be likened to an airplane fuselage.

Problem Involves Large Undivided Areas

Each wing is 50 by 112 ft., and, except for two small private offices in the extreme corners of one wing and a similar office in one corner of the other, there are no partitions so that each wing is, in effect, one mammoth room with sides almost entirely of glass. The arrangement on the second floor is practically the same as on the first. There is no basement except the small excavation in the very center of the building large enough to accommodate the fans, heat coils and other items needed in the operation of the system. The boiler room is in a separate building 2,000 ft. distant.

Down the center of the ceiling of each of the large rooms runs the centipede-like sheet metal pipe that carries the air from the mixing chambers in the basement and discharges it at intervals of 14 ft. through smaller ducts extending outward from the main line about 2 ft. and extending downward about 18 ins. with openings 10 ins. by 14 ins. Each small duct serves an area of 14 ft. by 25 ft. The size of the main duct as it comes up from the basement is 12 ins. by 60 ins. It tapers off to 1 ft. square at the end of the room.

Separate ducts lead into each of the private offices and into the lobby. Their pipes, unlike those in the main offices, are concealed in the wall, and the openings are covered with gratings, placed 7 ft. 6 ins. above the floor.

The air treating apparatus in the basement consists of tempering stacks, air washer and humidifier, a huge fan, re-heat stacks and double plenum chamber.

Double Plenum Chamber System

The system is termed double plenum chamber because it consists of one chamber containing heated air and a

second containing tempered air—which might be referred to as cold air—with the mixing dampers at the exits of both chambers and with the suction of the warm air drawing some cold air out of the lower chamber.

The purpose of the plenum chamber is that of air preparation. By means of it, fresh air, heated air, tempered air, washed air and moisture laden air may be introduced into the chamber, mixed in correct proportions and thence passed into the building for the convenience, comfort and health of the workers.

It is understood that it is a development of the past decade and was brought about largely through the efforts of heating engineers to conform to state laws regarding heating and ventilating of school buildings inasmuch as some states have laws which require a certain, definite percentage of fresh air to be brought into the school rooms at all times. Under the old systems it was necessary to open windows to admit fresh air, with the result that drafts occurred and heating bills mounted. By means of circulating heated air, instead of depending upon radiation, fresh air is brought from the outside, some of the air in the building is drawn back to the heating system for reheating, humidity introduced and the mixture sent back into the school rooms, correctly proportioned.

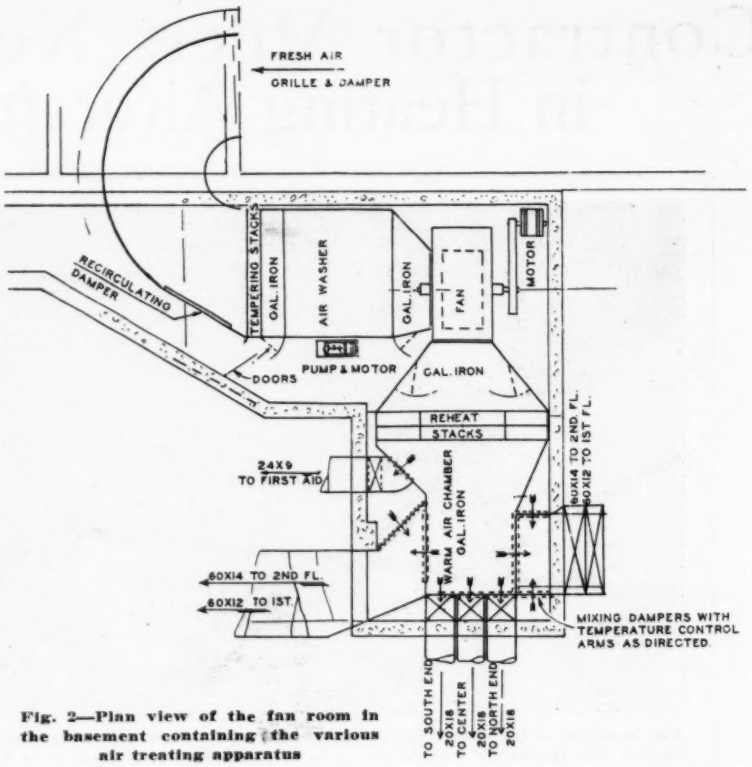


Fig. 2—Plan view of the fan room in the basement containing the various air treating apparatus

Fresh air may be brought in from outside the building at whatever temperature it may be and is heated to 40 deg. Fahr. first. If need be some of this air is then brought to the hot side of the system and heated to 140 deg. Fahr., then it passes into the plenum chamber. Separate ducts for each room lead off from this chamber and the fresh air and the heated air are mixed in the individual ducts to approximately 110 deg. Fahr. All of the mixing is accomplished by thermostatically controlled dampers in the ducts.

In case it is desirable to draw cold air from the building for re-heating, it is drawn through a door at the head of the stairs to the basement. This door is equipped with louvers or shutters which may be regulated to determine the amount of air passing through. If it is desirable, the exhaust air from the building may be discharged to the outside.

The only direct radiation in the building is that in the washrooms.

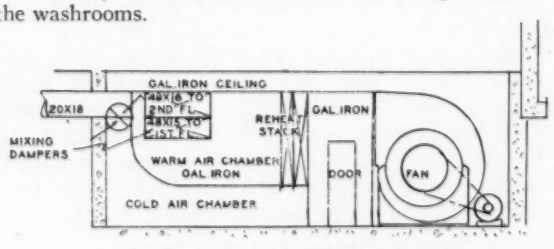


Fig. 3—Cross-section view of the double plenum chamber showing the arrangement used in mixing the air

The temperature in the building is kept at 65 deg. Fahr. with fairly high humidity which is said to be equal to temperatures of 70 deg. Fahr. or 75 deg. Fahr., with low humidity. Such a temperature seems low for office workers, but, in the high, dry atmosphere of Colorado Springs, it is said that since this degree of heat and humidity has been used, two-thirds of the nose and throat troubles of the employees have been eliminated.

The blast system has an advantage over the unit heater type used in the factory in that it is less noisy. The placing of the outlet ducts in the manner described permits the warm air to be driven to the outside walls where it is forced like a curtain down the sides to the floor and prevents cold drafts from the windows.

In the summer time, air from the north side of the building is drawn into the system, passed through the washer and humidifier, lowered 10 to 12 deg. Fahr., in temperature and passed into the building.

The capacity of the system is 24,000 cu. ft. of air per minute with an air change once in ten or twelve minutes.

Unit Heaters in Factory

The main factory building is 200 ft. by 240 ft., one floor. In it are 15 unit type heaters, discharging air at points 8 ft. above the floor. In some stations there are two heaters placed back to back, both drawing cold air from the floor through the same chamber, but one throwing the heated air to the south and the other to the north.

In the paint and dope rooms, which are located in separate buildings at a distance from the main plant, unit type heaters also are used, but they are placed higher and they take fresh air from the outside, heat it and cast it over the rooms. The exhaust air is discharged to the outside by means of suction fans in the lacquer

and paint room, and by means of the suction of air out of the spray booths in the dope room. Heaters in all buildings are under thermostatic control.

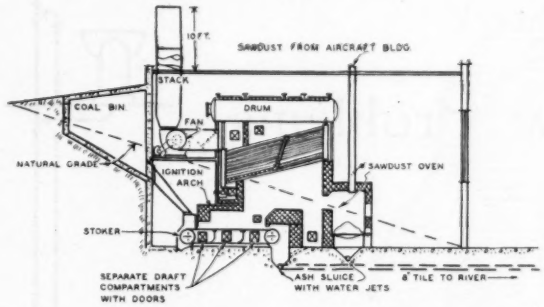


Fig. 4—Cross-section of the boiler room. Notice trucks may drive over the bin and discharge their coal which is delivered by gravity to the stokers. Induced draft permits of a low stack

Efficient Arrangement in Boiler Room

So much for the heating units. The boiler room is rather cleverly arranged inasmuch as it is situated just over the brow of a hill leading down to the river. The coal bunkers are built into the side of the hill so that their tops are on a level with the ground level of the factory site. Coal trucks may back onto the top of the bunkers, discharge their fuel into them, and it passes by gravity into the hoppers of the chain stoker under the boiler. Ashes are washed out of the pit and flow down to the river. An induced draft fan eliminates the need of a tall stack.

The draft under the chain grate is divided into several compartments so the load may be varied from 10 hp. in the summer to 450 hp. in the winter.

Behind the boiler is a sawdust oven to facilitate the burning of refuse from the woodworking departments.

All returns from the heating system come by gravity. The water drops into a receiving tank and then is forced into the boiler by an electrically driven pump which is operated by an automatic water line control. Make-up water is supplied by float control in the receiving tank. So efficient is the boiler room arrangement that coal at a dollar a ton may be burned.

The system works at 40 pounds pressure thus providing sufficient pressure for process work in the factory.

Use New Joints on Big Pipe Line

AN 8-INCH gas line crossing the Hudson River from Beacon to Newburgh, where the river is somewhat over a mile in width, recently has been completed. This line is of extra heavy pipe, designed for an ultimate pressure of 100 lb. per sq. inch and at present is carrying a pressure of 45 lb. per sq. inch. All joints were welded entirely by the oxy-acetylene process, the work having been done on a barge and the pipe lowered away into the river-bed as the welding progressed and the barge was moved.

A type of joint having several interesting features was designed and used for this river crossing. As shown in the drawing, it consists of a standard butt weld reinforced by a short piece of 9-inch standard pipe which fits over the butt weld and is welded to the pipe at both ends with fillet welds. This type of joint has several advantages. In the first place it stiffens the pipe at the joint against bending stresses, which may be very severe at times during the laying of the pipe from the barge. Possibly the greatest advantage of this type of joint, however, is the time and trouble saved in testing the joints.

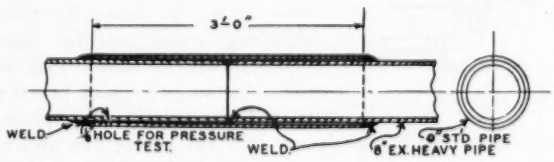


Fig. 1—Detail of pipe joint used in pipe line for river crossing. Note that two welds must fail before leak occurs in line

Each of the 9-inch pipe sleeves was provided with a hole threaded for a ⅛-inch pipe nipple. Because of the fact that an air compressor capable of providing the high test pressure required was not available, compressed nitrogen was used for testing. This was supplied at 1,800 lb. pressure in cylinders similar to oxygen cylinders. It is well understood that oxygen must never under any circumstances be used for pressure testing, because oxygen under pressure will react with explosive violence if it comes in contact

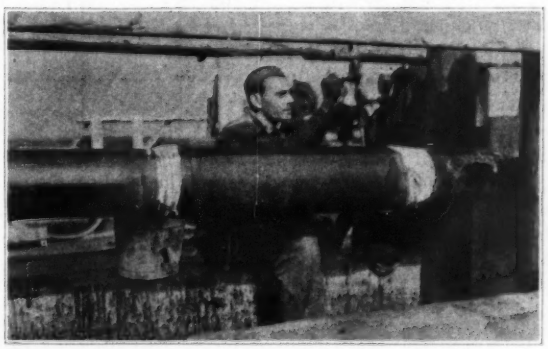


Fig. 2—The pipe line being tested. Soap suds were painted on the exterior welds to detect leaks and a drop in pressure was used to indicate a leak in the inside weld

with oil or grease. Testing procedure was as follows: A cylinder of compressed nitrogen was connected to the 5/32-inch annular space between pipe and sleeve by means of ⅛-inch pipe, fitted with a valve and pressure gage. The pressure was brought up to 350 lb. per sq. inch and soap suds were painted on the sleeve welds. If the pressure dropped and no leaks in the sleeve weld could be detected, this would indicate that the center butt weld was faulty and the pipe would have to be cut and rewelded. This, however, did not happen once during the entire operation. The annular space had a volume of about 1/10 cu. ft. and only nine cylinders of nitrogen were used in testing 163 joints in the crossing.

When You Connect Water Closets at Different Levels to the Same Stack

You Meet Some New Problems

By S. M. BARR

ARTICLE I

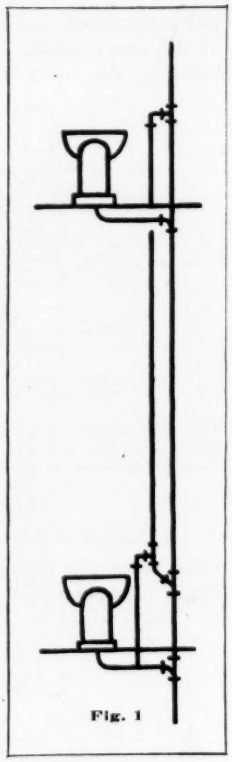


Fig. 1

WHEN this subject was first suggested to the writer as an interesting topic, it did not strike him that way—it didn't seem as if there was much that could be written on it.

To our surprise we find that there is a great deal that can be derived from the subject.

The first thing the writer did in starting to study it was to look through a large collection of pilot drawings, and right there was to be found an abundance of subject matter.

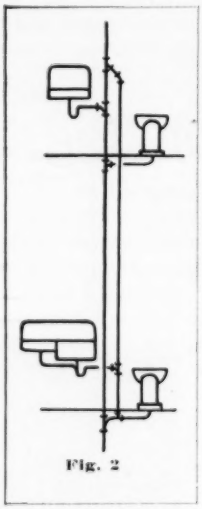


Fig. 2

The illustrations here shown will serve to call attention to the variety of practices that are to be found in installing two water closets at different elevations on the same stack, and in this connection it should be stated that many other variations can undoubtedly be uncovered.

One of the things our study shows is that while we may be approaching a country-wide code of plumbing practice, and are quite united on many of the fundamentals, there is much that still remains to be done, many things that must be ironed out before the goal is reached.

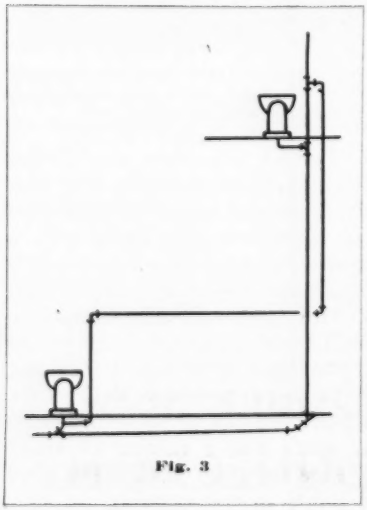


Fig. 3

Another thing that this study helps to prove is that in this trade of ours there are many practices which undoubtedly are being followed which have no actual scientific basis. As we look at it, some of these practices have been handed down from years ago, and have become such settled practices that they are never questioned. A man accepts some of these things when he meets them as an apprentice, and at that time does not question their value because he sees his superiors accepting them. Thus he grows up in his trade, often not thinking the thing out in any way, and not questioning this and other practices that he has been raised on.

And thus it is that in one place some venting restriction may be placed on a water closet located 6 ft. from its soil stack, and in some other place the limit for the same thing may be stretched to 25 ft.

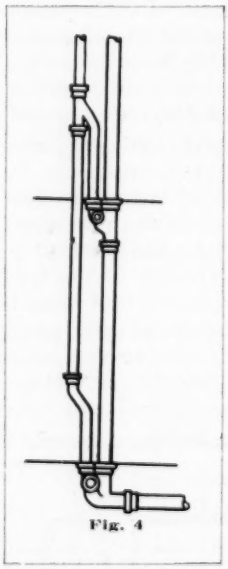


Fig. 4

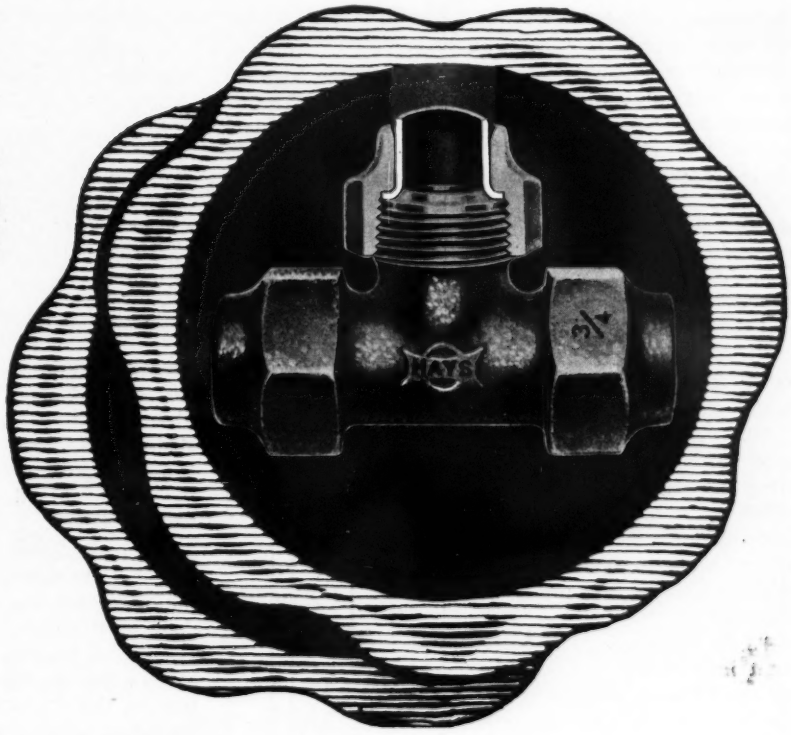
In a great majority of instances it is probable that these differences in practice are not vital from a sanitary standpoint. We do think, however, that often a variation in practice probably makes an installation more expensive in one place than in another.

Study Concerned with Venting

Our study of the subject we are considering shows that it is largely concerned with venting.

As we have intimated above, our study of this subject, in connection with the practice of many cities, as shown by their plumbing codes and by their pilot drawings, shows that in many instances present practice is not the result of demonstrated scientific knowledge. So far as we are aware, the only source we have for dependable information on such subjects is the Hoover code and recommendations, and that is where we turned for information on which to base the handling of this subject.

The Hoover code itself contains little that seems to apply, but on page 176 of the report, under the heading "General Conclusions," there are several statements that have direct bearing on our subject.



Exclusive with Hays—the 45-90 Double Seal. Also the only standard threaded fittings that will tie in with present plumbing

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HAYS DOUBLE SEAL CONNECTION

As we have stated many times, we have faith in these conclusions and recommendations because they are the result of unprejudiced, scientific investigation and experiment, conducted under the direction of the U. S. Bureau of Standards, which we believe to be the highest authority to be found in the country.

The conclusions referred to are as follows:

"1. The 3-in. stack is adequate for all separate dwelling house plumbing.

"2. It is possible by the close grouping of the fixtures around the soil stack, to obtain safe and efficient drainage for a single floor, and for the highest floor of a more complex system, without back venting any of the fixtures.

"3. It is necessary to back-vent individually or in groups, all small branch waste lines connecting directly into the stack below a water closet on the same stack, to protect fully the seals of traps on all such branches.

"4. A back-vented side-inlet branch to a crowfoot fitting on a middle floor, offers a degree of protection that makes it unnecessary to back-vent the water closet individually, provided the possible discharge does not exceed that from one bathroom group plus a kitchen sink, or a total of 10½ fixture units.

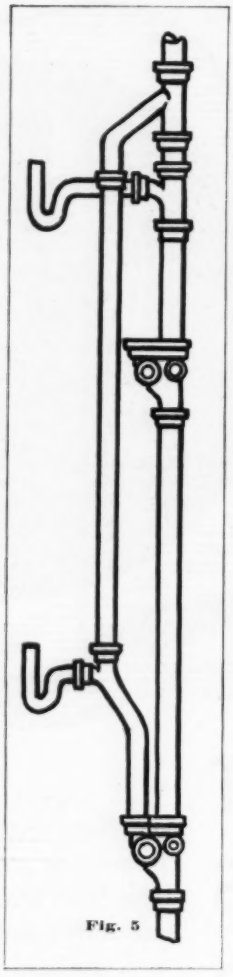
Fig. 5

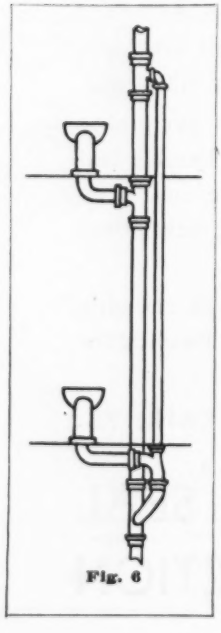
Fig. 6

"5. In cases where the possible discharge from floors above exceeds 10½ fixture units, it is necessary to back-vent each separate branch individually, including water closet branches, on a middle floor.

"6. It is necessary to back-vent each separate branch connection individually on the lower floor, including water closet branches, unless there is 3 ft. or more of straight stack below the fittings taking such branches, in which case the rules for a middle floor may be applied with safety.

"7. In a combined sewer system it is necessary to make ample provision in the size of house drain and house sewer, in order to protect fixtures set low on the stack, even when such fixtures are individually back-vented."

General Practice

We presume that when two water closets are on two different floors, one directly over the other, as is often the case in various types of dwellings, the connections shown in Fig. 1 represent fairly accurately general practice. Perhaps the connections would be made according to Fig. 1 in a majority of instances, taking the country as a whole. This recognizes the fact that whenever a water closet discharges into a stack, it makes necessary the venting of all fixtures below.

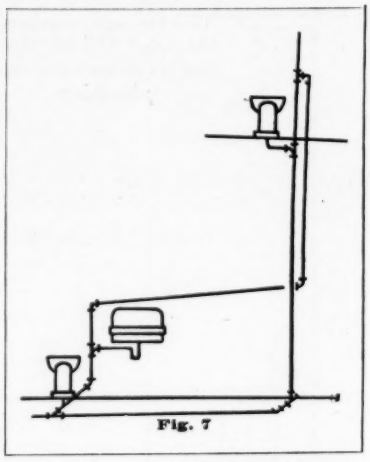
Fig. 7

The connections of Fig. 1 are capable of a great variety of modifications, such as are seen in Fig. 2. Here the main vent connects into a vent hub on the drainage fitting of the lower water closet, instead of connecting back into the stack through a fitting as in Fig. 1. This matter of connecting the vent stack back into the soil or waste stack below the lowest vent connection into the main vent, is an important matter, and a great many of our plumbing codes definitely call for the connection.

What often happens when the main vent does not have to be connected back into the stack, appears in Fig. 3. Here the vent to the lower water closet is installed by continuing the main vent line as the individual vent of that fixture. The chief objection to such a method is that often the horizontal run, perhaps covering a distance of many feet, is so flat as to make it impossible for condensation and scale to drain back out of the vent and into the drainage pipe. This condition in due time results in the partial or complete stoppage of the vent area, thus making the vent ineffective or at least reducing its effectiveness.

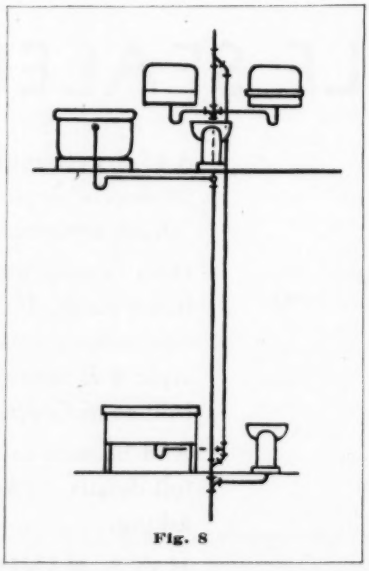
Fig. 8

A further exceedingly common error of this same character is produced by taking off the water closet vent from the wa er closet lead bend horizontally,

"20 *degrees below zero,* and not a job found wanting"

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Division of

AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

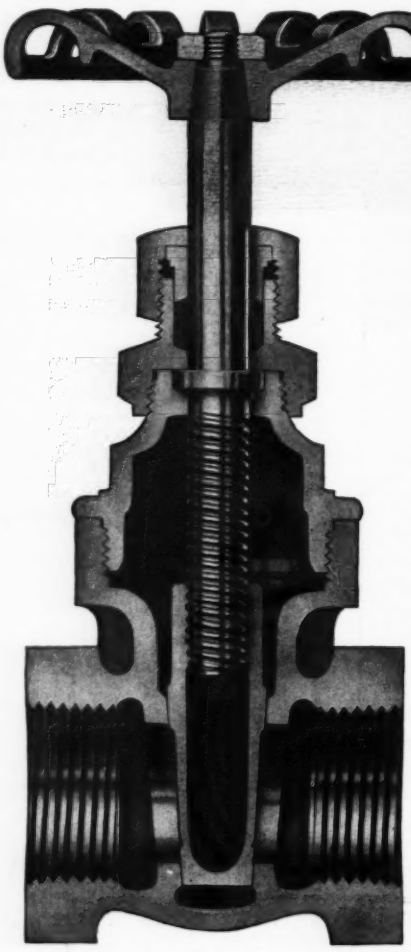


FIG. 225 SECTIONAL

for PLUMBING AND HEATING

Specify

WALWORTH VALVES FITTINGS AND TOOLS

● There's a lot of satisfaction in turning a job over to an owner with a feeling of confidence that every piece of equipment will function properly with NO TROUBLE. ● Such jobs mean repeat business for the plumber. ● But experienced craftsmen know that the finest workmanship cannot overcome the faults of defective, cheap material. ● That explains why so many plumbing houses are standardizing on Walworth valves and fittings. ● The "complete line" and our reputation for "no compromise on quality" lend confidence to the man who surveys a Walworth job and says: "That's good. ● I'll stake my reputation on that."

●

● For jobs that call for "better than ordinary" material, we recommend this heavy standard wedge gate valve for 150 lbs. steam pressure and 225 oil, water or gas pressure. ● It is larger and heavier than standard pattern valves and will stand greater pressure and strain. ● The red enameled, non-heating handwheel and the fine finish on the hexes, bonnet and stuffing box ring give class and distinction to any job.

WALWORTH

Walworth Company, General Sales Offices: 60 East 42nd St., New York
Plants at Boston, Mass.; Kewanee, Ill.; Greensburg, Pa.; and Attalla, Ala.
Walworth Company Limited, 660 St. Catherine Street West, Montreal, P. Q.
Walworth International Co., 11 Broadway, New York, Foreign Representative
. . . Distributors in Principal Cities of the World . . .

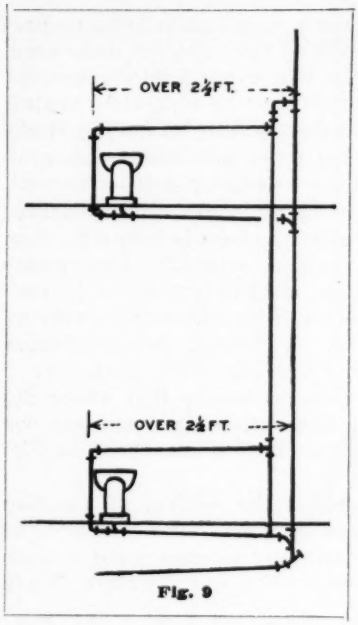


Fig. 9

as also shown in Fig. 3. This makes an additional pocket for scale and condensation to accumulate, and when the two errors occur on the same line of vent, as they often do, it greatly increases the danger of vent area reduction.

Drainage and Vent Fittings

In recent years very great advances have been made in the design of drainage and vent fittings for practically every conceivable situation and requirement. In Figs. 4, 5 and 6 are shown the use of some of these designed fittings that cover the return of the vent stack into the soil stack in a very acceptable manner. The use of these fittings not only accomplishes the venting of fixtures in a most efficient way, but often effects a saving in labor and material.

We do not need to enlarge on the subject of such fittings as these, for only recently we have devoted several articles to the subject. We will simply call attention, however, to the fact that the three illustrations cover only an exceedingly small percentage of the fittings that would be applicable to the installations that we have under consideration.

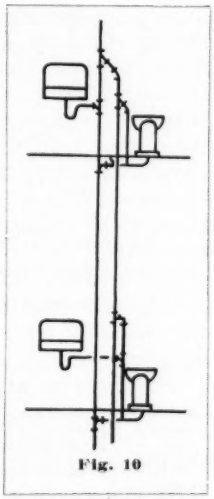


Fig. 10

Referring again to Fig. 2, it will be seen that the combination fixture wastes into the foot of the main vent. The connection of a fixture waste in this manner is very common practice, and in our estimation very good practice. At the same time it is a type of wet venting, for the combination fixture certainly creates a wet vent for the water closet. There is still much opposition to all kinds of wet-venting, and yet, we know of cities where wet vents are frowned upon, and yet such a connection as that of the combination fixture in Fig. 2 would be approved.

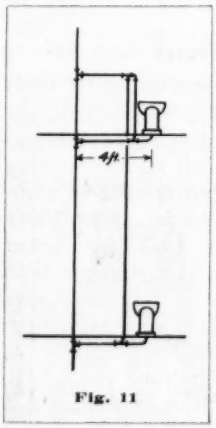


Fig. 11

In some of these cities we haven't a doubt that this connection would be considered O.K., while the connection of a lavatory waste into a 2-in. water closet vent would not be allowed. As a matter of fact, all that counts in this case is the size of the vent. If the individual water closet vent was 2-in., it would seem as safe to connect the lavatory waste into it, as to connect the combination fixture waste into the foot of a 2-in. main vent stack. It is simply another case of tweedle-dee and tweedle-dum.

In Fig. 3 was shown an error that is often found in the running of horizontal vent lines. Fig. 7 shows the error overcome by running this vent at as sharp a pitch as can be obtained. Here again wet-venting is seen. Fig. 8, however, shows connections for work as now very commonly installed, especially by those cities and towns which have accepted the Hoover plumbing recommendations, in which no one of the six fixtures has what may be called an individual vent, or a trap vent. And yet, every one of these fixtures is perfectly protected against the action of siphonage.

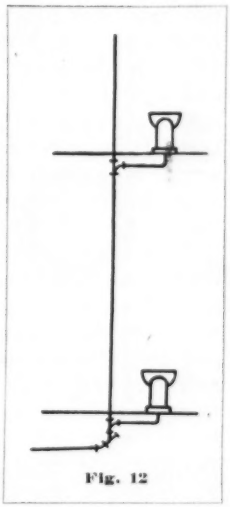


Fig. 12

Entrance of Fixture Waste into Stack

The lavatory and kitchen sink are stack-vented. This can be done when fixtures are closely grouped about their stack, as shown in the second of the six Hoover recommendations given above. The top water closet is most effectively stack-vented also. By the use of a crowfoot fitting, the bath tub also is effectively vented. Formerly it was considered that entrance of each fixture into the soil or waste stack through its own separate fitting, was the best practice that could be followed. Now, however, one of the things discovered by the Hoover investigation was that the connection of such a fixture as this bath tub into a side inlet on the drainage fitting serving the water closet, was a far greater protection to the bath tub, against the possibility of siphonage, than if it had been connected into a separate fitting placed below the water closet fitting. The reason for that is that the entrance of the bath waste into the stack would in that case come at the

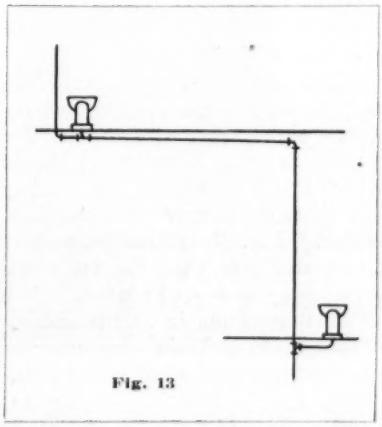


Fig. 13

point where the flushing of the water closet would produce the maximum aspirating effect.

Distance of Fixture Trap from Fixture

In Fig. 8, of course the lower water closet and the set of wash trays are in need of venting, but for bath fixtures effective venting is provided by the main vent line.

A study of plumbing codes shows that in a large majority of instances such codes specify that a fixture trap shall not be further than 18 in., 2 ft., 3 ft., or at most 3 ft. 6 in. from its vent. A distance of 18 in. is the least distance called for, we believe, and 2 ft. is most commonly called for. However, again referring to the Hoover investigation, we find that 5 ft. is named as the distance from its vent that a trap may safely be placed. Indeed, this distance might be considerably increased with safety, according to the following quotation, page 57, from the Hoover report: "Doctor Hunter's experiments show that in the case of wash basins plain traps of 2 to 4 in. seal, connected to horizontal wastes of 4 to 8 ft., would be safe against siphonage, and in the case of wide bottom fixtures the lengths might be about twice as long, with one 90-degree elbow not more than 18 in. from the trap. But on the basis of all the evidence at hand, the committee decided that 5 ft. should be established as a reasonable limit for the length of an unvented horizontal waste, measured horizontally from the vertical inlet of the trap to the vent opening."

Purpose of Venting

In one of the large cities, the practice shown in Fig. 9 is demanded. As we understand it, if the lower water closet had been within 2½ ft. of the stack, it would have required no vent. In our opinion this fixture should be vented, regardless of its distance from the stack. Regarding the upper water closet, however, it seems an absolute waste of good money to demand that it be vented. Plumbing fixtures are vented for the principal reason that air may thereby be supplied for the purpose of overcoming any tendency to siphonage. If there is no tendency whatever to siphonage, why go to the expense of venting? In the case of the upper water closet in Fig. 9, we can find no excuse for venting on the ground that there is danger of siphonage. The ordinance covering Fig. 9 is the following: "If a water closet is over 2½ ft. from the main soil stack, a 2-in. continuous vent is to be used." We should explain that an illustration in this plumbing code is similar to that of Fig. 9, showing that by the term continuous vent is meant what is generally known as a loop vent.

Fig. 10 shows another layout of similar character, taken from the pilot drawing of a large city.

Top Floor Water Closet

General practice through the country considers that a top floor water closet or other fixture setting close to the stack does not need a separate vent. The idea is that such a fixture is vented more effectively by the soil or waste stack extension than possible in any other way. There would seem to be no possible doubt of the truth of this, and yet there are a few cities which insist that every fixture connected to the plumbing system must be separately vented. In the case of Fig. 10 the top floor lavatory is stack-vented, and yet in the cities just mentioned, even that fixture would have to employ a separate vent.

Another city plumbing code has this ordinance: "In all cases where a water closet is over 4 ft. from the main stack, it shall be vented." That means that two water closets on different floors in residence work, would have to be connected according to the method of Fig. 11. Indeed, this illustration is taken from the pilot drawing of the same city.

This case is not quite so bad as that where 2½ ft. was the limiting distance, but nevertheless, we do not feel that the top floor water closet in Fig. 11 requires venting.

Fig. 12 well illustrates the method of handling water closets followed by many cities. It will be interesting to see what the requirements are of some of these cities, without needing to name them. They are as follows:

"No fixture discharging into a soil or waste stack which extends in undiminished size through the roof need be back-vented where the aggregate area of all branches discharging into the stack above the fixture does not exceed the area of the stack, or where a closet does not discharge into the stack more than 20 ft. above said fixture, providing the fixture is within the distance elsewhere allowed in these rules. In the case of water closets the discharge above the fixture may equal twice the area of the stack and a closet may discharge into the stack 25 ft. above the fixture without back venting the closet. This rule shall apply only in residences, except where specially allowed."

It will be seen that this rule would easily allow the lower water closet in Fig. 12 to be installed without a vent.

We know of at least three cities which operate under this ordinance.

In another instance, the following is taken from the plumbing code of one of our large cities: "Where three siphon-jet, washdown or hopper water closets with P-trap are on a 4-in. stack, each within 4 ft. of the stack, the lower water closets need not be vented."

Basement Water Closet

The last plumbing code reference calls to mind a peculiar fact that we have noted in studying the plumbing practices of various cities. We refer to the fact that a number of cities call for the venting of water closets on upper floors, but require no venting of basement water closets. As far as we know anything about the subject, the basement water closet is often in greater danger of siphonage than any other fixture, and to assume that because it is in the basement it is therefore safe against siphonage is far from sizing up the situation correctly.

We think no one would be ignorant enough to claim that the lower water closet in Fig. 12 is

(Continued on Page 154)

TRADE PENBERTHY PRODUCTS MARK

A SYMBOL

ITS MEANING TO THE PLUMBING CONTRACTOR

When a plumbing contractor installs an electric sump pump or hydraulic cellar drainer bearing the trade mark reproduced above, it means that—

—he will earn a fair profit

—his profit will not be dissipated in servicing

—installation is simple and can be quickly made

—reliability and operating economy have been proved

—the pump is immune to corrosion—of copper and bronze throughout

—a financially responsible manufacturer stands squarely behind him in assuring satisfaction to his customer

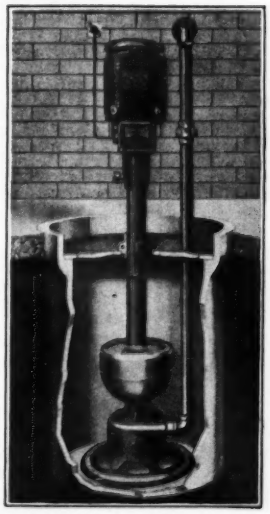
—the manufacturer has the experience, resources and research facilities to build to a purpose, not to a price

—the manufacturer is actively creating the demand by using large space in leading architectural and building publications.

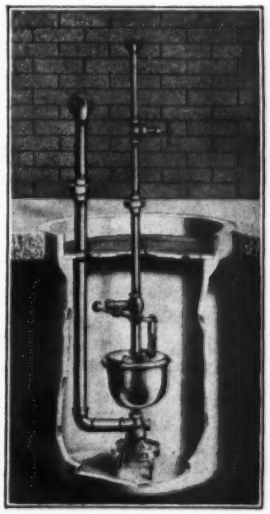
Carried in stock by leading jobbers throughout the country

PENBERTHY INJECTOR COMPANY

Established in 1886 DETROIT Canadian Plant Windsor, Ont.



Penberthy Automatic Electric Sump Pump



Penberthy Automatic Cellar Drainer (Water Operated)

COPPER AND BRONZE THROUGHOUT

PENBERTHY PUMPS REMOVE SEEPAGE WATER

RETAIL ADVERTISING SERVICE

Here is copy for two newspaper advertisements and a sales letter which our readers are free to use without charge. The cuts, if you want them, are sent you for twelve weeks—two new cuts every other week—for $4.20.

From the Youngest to the Oldest

A good water heater means comfort and joy for every member of the family. Only those who have experienced the convenience of an unlimited hot water supply can realize how greatly it aids in maintaining a cheerful home atmosphere. Whether for baby's bath or Junior's face washing ritual or Father's shave, a water heater will lighten the task and send a clean, happy family on its way to office, school or play, and leave mother with her household duties lightened fifty percent. From early morning until late at night, there is a constant demand for hot water, which one of our new and improved water heaters can supply for you at a surprisingly low cost.

(In this space your Name, Telephone Number and Address)

NEWSPAPER AD No. 93

WHY NOT HAVE EFFICIENCY IN THE HOME TOO?

"Homes," says Harry Brown, local plumbing and heating contractor, "are generally much less efficient than offices because they do not have labor-saving equipment in them.

"A man who wouldn't think of having his letters written in longhand may come home to a heating system that will call him into the basement from three to six times in the course of an evening. During the day his wife may have to heat water on the kitchen range—a wasteful method in comparison with the modern water heater.

"It seems to me that an efficient home is as necessary to happy living as an efficient office is to profitable business."

SALES LETTER No. 41

HARRY BROWN
PLUMBING & HEATING

Two Rivers, N. Y.,
July 26, 1930

Mr. Edward Jones,

Two Rivers, N. Y.

Dear Sir:

The home owner who has gas heat, automatically controlled, knows what comfort and convenience mean. He can get up in the morning to a warm house—by merely setting a clock.

He can enjoy an evening's reading, he can entertain without having to run into the basement every half-hour.

His wife's day is freed from drudgery. His children live in an even temperature all day long.

He can feel that his home is holding its yalue. He can rent or sell at a little better figure.

In short, he can feel that his is an up-to-date home and the fancied advantages of apartment-house living are his, practically speaking.

We should like to talk over the matter of modernizing your heating plant. You will find it an economy, a comfort and a convenience. Just telephone. We'll send a competent man.

Very truly yours,
HARRY BROWN

HERE are two newspaper publicity items — clip them and hand them to your local paper. They represent valuable sales help.

This Is the Old Way of Heating

THE modern way of heating is vastly different from that used by our distant ancestors in the Stone Age. Instead of a smoky fire in front of a cave, man has at last so perfected heating units that the home owner may now have a heating plant that requires no attention all winter long. Even the basement, once a dust blackened dungeon, may now be converted into a useful and attractive room. With the modern gas burner, lighting one match in the fall is the only firing effort needed all season. Man is no longer a slave to his heating plant. You can buy now and pay later.

(In this space your Name, Telephone Number and Address)

NEWSPAPER AD No. 94

IF OUR STONE AGE ANCESTORS COULD SEE US NOW

"Well, at least man has progressed in some ways since the Stone Age," says Harry Brown, local plumbing and heating contractor. "He used to warm himself, and on one side only, by an open fire in front of his cave, breathing smoke and suffering considerable discomfort.

"But now, man has this thing of house heating down to a pat science. It has become possible to heat the home all winter long without ever realizing that you have a heating plant at all. You can light a match in the fall and forget about the whole business until spring. You wake up on the coldest winter mornings and find the house warmed to just the right degree. Automatic gas heating is the secret."

Copy for an Educational Leaflet

Copy A

(In this space your Name, Telephone Number and Address)

AT the left we show layout for one of the educational leaflets in the series being published on this page. The copy is below. All you have to do is show copy and give the cut to your local printer—he can make it up in just the size shown, to be kept in your sales room and enclosed in letters. The copy can be used on a blotter, also. (35c for the cut.)

Copy "A"
for the Educational Leaflet

Warm Water Keeps the Baby Healthy

From youngest to oldest, every one in the family delights in hot water. Baby's bath is made more pleasant and father's shave is made easier. Junior will be easier to persuade to take a bath if he knows he can get plenty of hot water at a turn of the faucet. Mother's cleaning can be done in almost half the time. Hot water for all these purposes and more is available for the home with our (insert name of water heater you carry).

Heating water in a boiler on the kitchen stove is as out-of-date as the horse and carriage. Today, the modern water heater reduces all household tasks to the minimum of effort. The family laundry can be done quicker, and hot water cleans clothes better and lengthens their life. Hot water at a turn of the hand means hot water without waste of time or effort. Hot water is an important factor in sanitation.

Copy for a Letter Enclosure

(To be set up by your printer just as shown here and sent with monthly statements, sales letters, circulars or any customer-addressed mail. This form is actually used by a plumbing and heating contractor.)

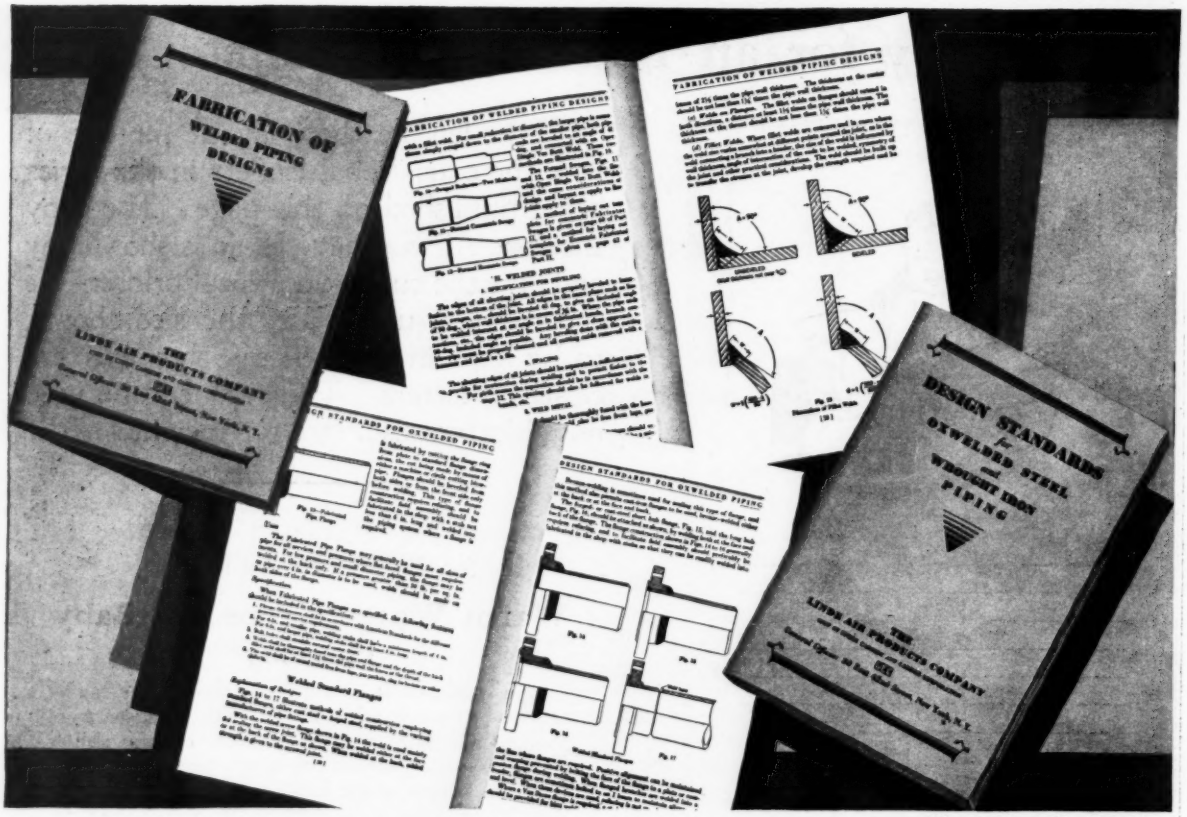
Why a License?

There is a reason, in (insert name of your city), why a plumber must qualify by a rigid examination, under the supervision of the department of health, before he is granted a license to do business.

The proper elimination of waste matter is very important in our every day life. Fixtures, waste and vent pipes that are not properly installed create an unsanitary condition and are the cause of much sickness.

The licensed, bonded plumber, for the proper installation of a plumbing system, is an indispensable unit in the life of your community. The plumbing code, the registered, licensed plumbers and the municipal plumbing inspectors are your protection.

(In this space your Name, Telephone Number and Address)


FABRICATION OF WELDED PIPING DESIGNS
THE LINDE AIR PRODUCTS COMPANY
DESIGN STANDARDS for OXWELDED STEEL and WROUGHT IRON PIPING
THE LINDE AIR PRODUCTS COMPANY

OXWELDED PIPE JOINTS

Technical Publicity Dept., Room 1201
205 East 42nd St., New York, N. Y.

Gentlemen: Please send your new books:

"Design Standards for Oxwelded Steel & Wrought Iron Piping"
"Fabrication of Welded Piping Designs"

Name .....

Company .....

Position .....

Street Address .....

City ..... State .....

DE-7-26-30

CONSTRUCTION men are more and more turning to oxy-acetylene welding as an advantageous method of piping installation.

For their guidance in design and erection of oxwelded piping systems, we have prepared two illustrated books covering Design Standards and the Fabrication of Welded Piping Designs.

"Design Standards for Oxwelded Steel and Wrought Iron Piping" contains 68 pages and 45 illustrations, explains in detail the fundamental designs used in Oxwelding steel and wrought iron pipe, with many helpful charts and tables.

"Fabrication of Welded Piping Designs," 86 pages, profusely illustrated, explains the actual production of designs, gives procedure controls for the work, and furnishes tables for estimating costs.

If you are interested in the possibilities of oxwelding as applied to pipe, you can obtain these books from the nearest Linde district office, or by returning the coupon.

THE LINDE AIR PRODUCTS COMPANY, THE PREST-O-LITE COMPANY, INC., OXWELD ACETYLENE COMPANY, UNION CARBIDE SALES COMPANY,

Units of

UNION CARBIDE AND CARBON CORPORATION

General Offices, New York UCC Sales Offices, In Principal Cities

65 Linde plants • 48 Prest-O-Lite plants • 174 Oxygen Warehouse stocks • 156 Acetylene Warehouse stocks • 42 Apparatus Warehouse stocks • 245 Union Carbide Warehouse stocks

When the Bids Were Opened

* { Scene I: In a Town Hall
  { Scene II: The Loser Compares Notes

THE stage is set and the actors are in place. —The place is any town hall, anywhere in the U. S. A.—The time is now, although most of us have been in the same place before and expect to be present at many more similar gatherings.

Those present include some particular board or committee, the clerk and one or more of his aids, a number of contractors, some sub-contractors, the usual quota of material men, the ever-present salesmen, the architect, the engineer, the bond men and the usual group of curious spectators and loafers, some of them taxpayers and many of them not.

The clock peals the hour; for the past ten or fifteen minutes the clerk has been sorting and stacking a bunch of envelopes of various and sundry sizes and colors, but now he places them on the desk before him, pulls out a fair-sized edition of Big Ben and nods his head, evidently to tell the world, but in particular those present that the clock on the wall must be right because it agrees with his own timepiece.

The chairman raps on the desk with his gavel and solemnly states that "This meeting will now come to order."

The chairman raps on the desk with his gavel and solemnly states that "This meeting will now come to order."

There is the usual scrambling for seats, cigars are snuffed out, and quietness reigns.

The clerk calls the roll and announces the fact that a quorum is present.

Thereupon the chairman appeals to the clerk in about these words: "Mr. Clerk! For what purpose has this meeting been called?" Although he knows full well just exactly what the meeting is for because every material man and salesman in the room has already called upon him and extolled the merits of the particular article in which he is interested in an effort to get him to sway just a bit towards that particular article when the bids have been opened and the orders are placed.

***This is the first of a series of articles which will cover Estimating Practices in a comprehensive way**

TRADE RIGID MARK PAT. PEND'G
If this Housing ever Breaks or Distorts we will replace it Free
UNCONDITIONAL GUARANTEE
If this Housing ever Breaks or Distorts we will replace it Free
THE RIDGE TOOL CO.
ELYRIA, O.

ARE YOU A TOOL BULLY?

THIS WRENCH WANTS TO MEET YOU

ARE you kind to your wife and children but a "hard-guy" on tools? Well, this RIGID Pipe Wrench is made for you. It's the original tough pipe wrench. You can't break or distort the housing. And the hook jaw will take all the punishment you give it and never lose its temper. Same for the powerful I-Beam handle with its handy hang-up hole in the end.

And it'll keep you good natured by the way it works. The adjusting nut in open housing turns easily in all sizes. The jaws bite onto the pipe or let go instantly. No slipping, and you simply can't lock it on. And there's an accurate pipe scale on the jaw so you can set it for pipes hard to reach. You can bully this wrench all you please. The RIGID likes it. Ask your jobber.

There are also RIGID Super-Wrenches for big pipe, RIGID Pipe Cutters with the renewable "Blue Ridge" blade, RIGID Vises with no-mar jaws and the new RIGID Die Stock, sensation of the Boston Convention.

THE RIDGE TOOL CO. Dept. DE, Elyria, Ohio

RIGID

PIPE TOOLS

The Clerk replies: "To open bids for the installation of Plumbing and Heating in Building No. 17."

The chairman nods his head and directs the clerk to proceed with the opening of envelopes and the reading of the bids.

He slits the first envelope, reads the date, address and complete letter, notes that certified check is attached, and passes the complete file over to his assistant, who enters the bids on a sheet ruled for the purpose, and almost everyone else in the room does the same thing, usually in small ruled books provided for that purpose by the ever-present bond salesmen.

The clerk proceeds to read all of the bids in groups as contents of each bid is indicated on the outside of the envelope.

And here is what happened when the clerk read the bids for the remodeling of certain plumbing and heating equipment in a certain school.

Bid from Plumbing and Heating Contractor A $455.00
Bid from Plumbing and Heating Contractor B 542.00
Bid from Plumbing and Heating Contractor C 550.00
Bid from Plumbing and Heating Contractor D 599.00
Bid from Plumbing and Heating Contractor E 950.00

And we have a not uncommon condition, a very low bid, although sometimes there are several very low bids, another group of bids that are fairly close together, and a very high bid, and frequently there are several that are very high.

In fact, attendance at "Lettings" or "Bid Openings" brings to light the interesting fact that where there are a number of bids, they will usually be divided into groups with several bidders close to one figure, another group close to another higher figure, and still other groups at higher prices, all depending upon the number of bidders.

The Contract Is Awarded

Bidder "A" was present, his bid was made out in the proper form and was accompanied by a certified check and he signified his willingness to stand by his figures and go through with the contract, whereupon the motion prevailed that the contract for the plumbing and heating be awarded to "A" for the sum of $455.00, the contract to be drawn up by the attorney for the board and the contractor to furnish the usual surety bond. As there was no further business, the meeting adjourned.

Those who were figuring with "A" gathered about to congratulate him, while B, C, D, and E formed another group who wondered: "How in Sam Hill that bird could take that job for that price and expect to have his shirt when he would be through with it."

However, there were among those present a number of individuals who felt that "A" was a wise guy with an ace in the hole and would roll into this job and come out with a slice of profit, whereupon they proceeded to trail him for the purpose of selling him various and sundry items, all the way from bonds and tools to the actual material.

Time passed. The contract was signed. The bond furnished.

The job was started and completed. The board paid "A" his contract price. "A" paid for his bond, the labor and the material, but not entirely with the money received from this particular job.

There was a reason.

When the Five Bidders Laid Their Cards on the Table

It came to light when A, B, C, D, and E met to discuss various and sundry things, and it was agreed among them that it would be a fine thing for all of them to lay their cards on the table and see just exactly what their individual figures were on this particular job.

"A" went the others one better. He agreed to furnish his cost sheets for the job.

Thus we find them together again, gathered around the big table, all smoking, all talking, and finally having settled, each in his own way, Farm Relief, Volstead, the Tariff and various and sundry other minor matters, they turned their attention to the estimates sheets for Building No. 17, which had been tabulated in the following form:

	"A"	"B"	"C"	"D"	"E"	Cost to "A"
112' Radiation...	$40.00	$43.00	$43.00	$45.00	$45.00	$43.00
3 Radiator Traps	15.00	20.00	20.00	21.00	25.00	20.00
2 Shields	12.00	15.00	15.00	18.00	15.00	15.00
3 Sets Hangers..	9.00	15.00	15.00	16.00	15.00	15.00
170' Pipe	15.00	10.00	12.00	17.00	15.00	12.00
Fittings	15.00	10.00	10.50	5.00	15.00	5.00
Sundries		5.00	7.00	10.00	10.00	10.00
Labor 6 Rads...	70.00	90.00	90.00	100.00	150.00	100.00
Bond		7.50	7.50		10.00	
1 Closet	50.00	65.00	65.00	70.00	75.00	70.00
1 Lavatory	20.00	26.00	26.00	30.00	35.00	30.00
100' Pipe & Fittings	5.00	11.00	10.00	6.00	15.00	6.00
25' 4" Galvanized	15.00	16.00	17.00	18.00	25.00	18.00
5 Fittings	10.00	13.00	12.30	8.00	25.00	8.00
Bends, Nipples, Lead	10.00	4.00	5.50	6.00		6.00
Solder, Lead, Oakum			2.00	3.00	5.00	3.00
50' 2" Galvanized	12.00	15.00	10.00	9.00	20.00	9.00
Sundries		5.00	4.00	10.00	15.00	10.00
Bond	15.00	7.50	7.50	15.00	10.00	15.00
Cartage	5.00	4.00	2.00	3.00	10.00	3.00
Labor	60.00	33.00	49.50	90.00	100.00	100.00
Cost	$378.00	$417.00	$442.00	$500.00	$635.00	$508.00
Bid	455.00	542.00	550.00	599.00	950.00	455.00
						$53.00

Showing a net loss of $53.00 plus overhead and anticipated profits of $77.00 or a total loss of $130.

For a short space of time, everyone was silent, each was digesting the figures in his own way and each was trying to reconcile his own costs with "A's" bid and with "A's" actual job cost.

"A" broke the ice by admitting he had been "off" on several items because he had listed the articles without first getting prices from the supply house, thinking that he knew just what he would have to pay and not giving any heed to the quotations that had been mailed to him.

He saved some money on fittings by having the fitter use the welding torch, but even so the fitter and his helper bumped into some cutting that took more time than he had estimated, with the result that his labor cost on the heating exceeded the estimate by $30.

He had guessed at the cost of the closet and lavatory and found that he had to supply a certain type and could not beat the market, and his labor cost mounted into the clouds because this was one of those puttery jobs that had to be done piece-meal and also because of extra cutting that took a big lot of very expensive time.

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"B" admitted, after looking at the figures, that he was all wet when it came to estimating the cost of the labor for the plumbing work.

"C" was also low in his labor cost for the plumbing work, but felt that if awarded the job and if his man "Pete" could have been placed on the job that "Pete" would have come through in even less time than he had figured, but he did admit that "Pete" was the only man in his shop that could have turned the trick, and without "Pete" he knew that it would have been a dollar trading job at best and perhaps he would have gone into the red as did "A."

"D" came pretty close to having the correct advance estimate and told the rest of the gang that he had figured the job carefully, having already handled a similar job, and felt that he was in a better position to know the facts than anyone else.

"E" was plenty high and said that he had also handled one of these jobs and had stubbed his toe on it, so he had figured plenty strong and had added plenty of overhead and profit, because, if he got the job, he wanted a profit plus a bit to apply on the last "red" job for the same community.

Points to remember: Estimate correctly, add overhead and profit in the proper manner, to cover the actual cost of all labor and material as well as overhead and anticipated profit

What Would Have Been a Fair Price for the Job?

Then it developed that each and every one of them had an overhead of from 20 to 23 per cent and "A" and "D" had added 20 per cent to their costs; "B" and "C" had added 25 per cent; and "E" had added 50 per cent, and they had added this percentage to their costs when their overhead had been figured on sales, so "D" stepped to the black-board and figured it out that if $508.00 was the actual cost of the job and if 10 per cent was a fair profit (on sales) and 20 per cent a fair mark for overhead that the proper way to find the selling price would be to proceed as follows, $508.00 divided by .70 (100 per cent less 30 per cent) (the 10 per cent plus the 20 per cent), which is $725.71, and he proved this to be a fact in the following manner:

Profit 10 per cent of sale price of $725.71 is	$ 72.57
Overhead 20 per cent of sale price of $725.71 is	145.14
Total profit and overhead	$217.71
Sale price	725.71
Less profit and overhead	217.71
Leaves the actual cost of the job at	$508.00

And the meeting adjourned, but with certain facts firmly fixed in their respective minds. First, to estimate correctly, and second, to add the overhead and profit in the proper manner so that the completed jobs would show three proper divisions of the receipts, the money for the actual cost of all labor and all material, the money for the anticipated profit, and the money for the various and sundry items of overhead.

And that brings to mind the fact that passing through the State Experimental Farm on various occasions, I have noted the various fields of wheat, oats, rye and other grains. I have noted that they are planted in small sections of uniform size and towards the end of the growing year, the tops of the stalks are tied in little paper wrappers.

The object is obvious. Seeds of various kinds have been planted and the measure of the crop determines the value of the seed.

And there is another field in which the various weeds are growing and the growth of these weeds is also studied.

So we have the good and the bad. The good might be likened to the labor and material which enters into a plumbing or heating contract, and the bad might be termed overhead items.

They are both found on all installations, and if the proportions are correct the item of profit will be satisfactory.

Estimating is a most peculiar science and people have strange ideas and notions about estimates.

They will grab the phone and call from one to a dozen men to come out and submit estimates on a piece of work. Sometimes they intend to have the work done and many times they are merely shopping. If they do select someone to do the work, they never think of reporting that fact to the other bidders.

The same person who will call a doctor for a consultation and pay him well for that visit thinks nothing of asking the plumbing and heating estimator to call and estimate a job or to advise on a "sick" installation without remuneration for either time, transportation or knowledge.

And to carry it still further, the same man will pay a whole lot of money for professional services, whether successful or not, and at the same time expect the plumbing and heating contractor to handle work that requires just as much knowledge for a great deal less money but with an iron bound contract and guarantee.

Therefore, it is absolutely essential that the man who estimates plumbing and heating installations must know his stuff, his estimates must include every factor that goes to make up the cost, and he cannot book jobs at certain prices simply because John Brown or Sam White has offered to do those jobs for certain prices.

Estimating and sales are so closely related and interwoven that it is almost impossible to consider one without the other, in fact most sales are based on estimates, and the sale without an estimate or at least an approximate estimate or an estimate of a part of the installation, the fixtures for example, or the heating boiler, is almost unknown.

How to Make Estimates

Therefore, in considering estimating, let us start with the ordinary estimates and sales and build up from that basis.

This sort of estimating can be divided into groups: Estimates and sales made in the store; estimates and sales made on the job; and estimates and sales made in the store on plans and specifications for the prospective building.

In the first group, the estimator, usually the proprietor

of the plumbing and heating establishment, meets his customer on the best possible footing, particularly if the master has in his store and on display the particular article in which the customer has shown an interest.

For example, the master may have sent a journeyman out on a service call, only to find that the hot water tank is leaking and should be replaced, also the gas water heater is of an obsolete pattern, costly to operate, minus any automatic features, and a good prospect for the junk pile. He "sells" the owner or his wife on the idea that a combination tank and heater is the real thing and Mr. and Mrs. Owner get in the car and run down to the plumber's store to look at the heater.

There is a heater on display. The master shows it and points out its good features, the capacity, the weight of the materials, the kind of a gas burner, the automatic device for controlling the temperature of the water, the insulation, the enameled outer jacket, the vent connection with back draft prevention device, the economy of operation, the convenience of having hot water on tap at all hours, the little watchman that shuts off the gas when the tank is hot; the safety device which shuts off the gas when the pilot light is extinguished, and finally in answer to the question, states that the cost of the heater is only $90, to which is added the cost of installation, which will range from $10 to $20.

Fortunately, the manufacturer has placed a resale price upon his heater and this price appears upon the manufacturer's literature, thereby confirming the master in his quotation. The master is safeguarded because he knows that the heater is subject to a discount of 33 and 1/3 per cent, the result being that the master is assured a sum between $30 and $40 to cover his overhead and profit.

And this is particularly good business because the amount of the sale is fairly large, the cost of the material is much greater than the cost of the labor incidental to its installation, and it is a "quick" job, that is, the installation is completed in a few hours without the necessity of having to first "rough in" the job, then wait for several weeks and finally "finish" the job.

The job is sold and installed and should be billed within 48 hours, and the chances are that the money is in the bank within another 24 hours, making this an ideal sale and installation from every standpoint.

The estimating involved is simple. The cost and selling price of the heater is known. There is already a tank and heater in place, therefore the piping requirements, water, gas and vent, are very few, and naturally the amount of labor required is very small, so the master is justified in basing his calculations upon past experiences and lumping this cost at about $10; except in the case of larger heaters, as the cost of installation increases with the size of tanks due to increased weight and increased size of piping connections.

Another frequent sale is that of kitchen sinks, complicated because of the fact that instead of the old standard 20x30 sink of the past, we now have sinks with either aprons or roll rims, with drainboards at one end or the other and sometimes at both ends, and in lengths and widths to meet any and every requirement, also in various colors and in the acid resisting enamel.

Replacements usually call for a small amount of pipe work in so far as the water supplies are concerned, but this is a simple matter because the piping is concealed behind the sink back. Also a new trap and some waste piping is usually required.

It is unfortunate that resale prices do not apply to enameled ware, and the salesman-estimator must, therefore, determine for himself the selling price of the fixture and add to that the pipe, fittings, traps, faucets and labor necessary for the installation.

A frequent replacement is the hot water tank, usually 30 gallon in size, and the law of averages makes it possible to quote an installed price on replacements of this sort without very much chance of going wrong, as there is very little required except the new tank, a little pipe and a few fittings and the labor.

In some few cases, new stands are required and the estimator-salesman should sell his client on the idea of having a valve installed in the cold water supply line to the tank, a simple installation when doing the rest of the work, but one that increases the sale of material, makes for greater profits, and renders a worth while service to the customer.

Another fixed price installation sale is that of side arm gas water heaters; one that presents greater variations than the installation of hot water tanks, but still one that is covered in the law of averages.

Side arm heaters require a small amount of piping, both water and gas, a vent connection, and some labor.

Hurry in Making Estimates Dangerous

The second group is where the majority of losses creep into the ledger; the journeyman phones in to the estimator-proprietor that new fixtures or a new boiler is needed and the estimator hurries out to the job, takes a quick glance at the job, and guesses that it can be done in a certain amount of time and that a certain amount of material will be required and unless past experience has taught him to allow a safe margin of safety it is almost a foregone conclusion that the final cost sheet will show little or no profit.

Therefore, the proper plan is to shift all estimates into group one or three: Go back to the office, put all of the facts on paper, build up the estimate, have it properly checked, and submit a proposal that will bring back the cost and a profit.

And there is another angle to this plan, and that is the matter of credit. Frequently, we will send out on a "service" call, giving the service man instructions to make the job C.O.D., thinking that a small amount is involved.

When it is found that replacements costing considerable money are involved, and when the estimator rushes out to the job and quotes a price in a hurry, the dead-beat will say "Go ahead," because price makes no difference anyhow, the man is on the job, the material is rushed to him, and sixty days after the completion of the job the book-keeper looks up this chap's credit and finds that he is locking the door after the horse has been spirited away.

On the other hand, in making up the estimate in the office, a check on credits is considered a part of the estimator-salesman's duty, and the chances are a hundred to one that he looks up the prospective customer even before any figures are on paper, knowing that there is no use in wasting time and effort on a job that will not bring returns acceptable to the bank.

(To be Continued)

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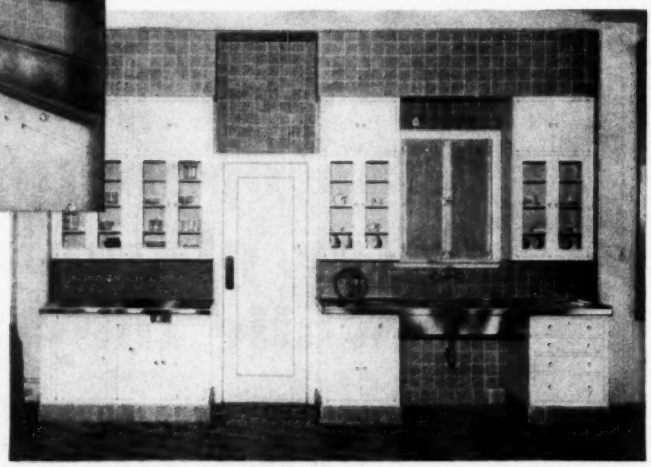

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This tabulation is the tenth in a program designed to give the plumbing industry a concise source of information on codes

Plumbing Code Tabulations

By R. M. STARBUCK, JR.

Article No. 10

THESE plumbing code tabulations are bringing to light many things concerning plumbing that we have not been aware of before. Naturally some of these things are excellent, some just fair, and others not good at all. This last statement of course is made on our own personal judgment. However, some things that we think are O. K., another may take decided exception to, and some of those things that we don't like may be the very best to someone else. This is a free country, and we are all entitled to our own opinion whether it is on religion, politics or plumbing.

It would greatly benefit the cause we are trying to serve, if these differences in opinion could be exchanged, and to that end we urge you to freely discuss whatever may be of particular interest to you in these tabulations, and to do it through the medium of DOMESTIC ENGINEERING.

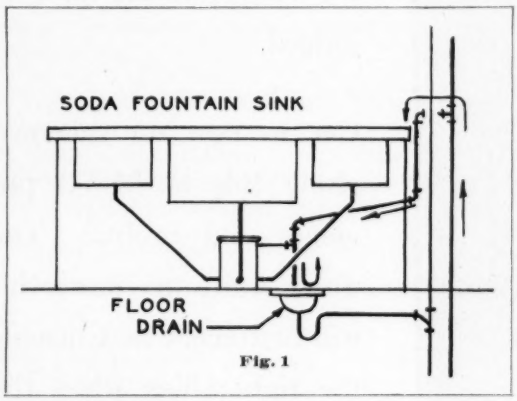

Fig. 1

Venting is the subject we have tabulated in this article.

If it were not for the need of venting, there would be far less difference of opinion and variation in practice than there is now. Whether we shall ever come to a point where we are all of one mind on the various phases of the subject, is a question. Probably we are headed in that direction, but what we learn in working out such a tabulation as this, shows that there are still the widest variations in the practices concerning venting.

Fundamental Requirements Common

There are certain fundamental requirements that are quite common to nearly all plumbing codes, and we have made no attempt to tabulate such information. There would be no end to such a program, and after it was completed, much of the work would be of little interest.

We are taking the states in alphabetical order, and in this particular article are covering the states of Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, District of Columbia, Florida, Georgia and Idaho.

We are most agreeably surprised to find that out of the seventy-seven cities in these states, whose plumbing codes we possess, not one fails to give venting due consideration. In this list there is no city which allows the free use of unvented non-siphon traps. It was pleasing to find that practically all these cities, according to their plumbing codes, are handling the subject of venting in an intelligent manner. By that we do not mean, however, that in our judgment some cities do not handle the subject much more satisfactorily than others.

An interesting sidelight is the fact that of the states here covered, the southern states—Alabama, Florida and Georgia—appear to be working under the Hoover code to a much greater extent than the other states. Apparently the Hoover code has not been put into force at all in California or in Connecticut. Possibly this statement will need correcting later.

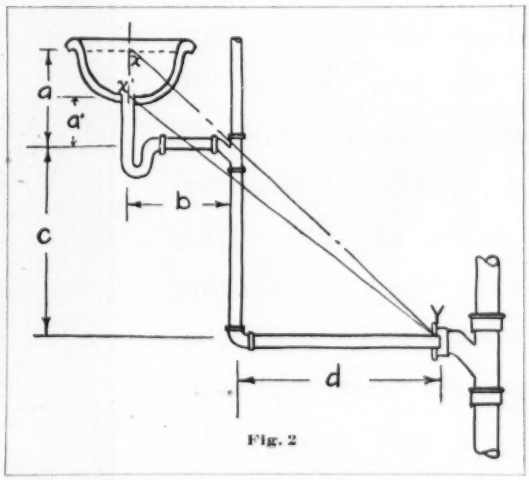

Fig. 2

Nearly all plumbing codes studied have an ordinance which deals in a general way with the purpose of venting. This is covered concisely and very satisfactorily by the ordinance on this subject found in the code of Palo Alto, Calif., viz.: "To provide adequate circulation of air, prevent back pressure and to prevent siphonage, special air pipes of galvanized wrought or cast iron shall be provided, of a bore not less than that of the trap served, and if it is to serve a water closet or slop sink, not less than 2-inch bore."

In the foregoing it will be noted that only galvan-

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ized and cast iron pipe are called for in venting. As a matter of fact a large part of the California cities apparently followed this practice. Many of the codes have this requirement—"All vent pipes shall be of

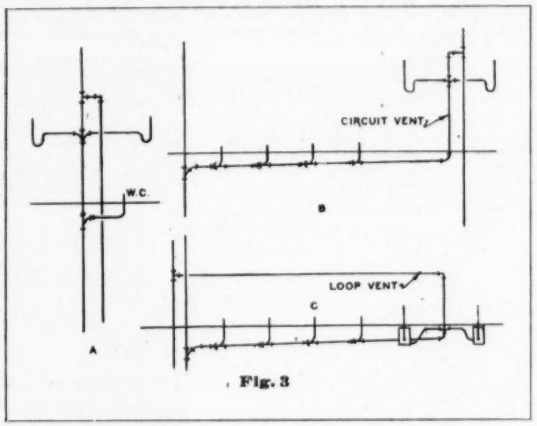

Fig. 3

galvanized or cast iron." Several of the cities demand galvanized pipe for all vents under 3-inch. The Sacramento code states that all vents may be galvanized pipe or standard cast iron, but that both may not be used on the same installation, or words to that effect.

Uncommon Requirement

Sacramento has another requirement that we have not seen in other codes: "On buildings facing east and west, all vent pipes shall terminate not less than eight inches above the roof, and must be flashed and

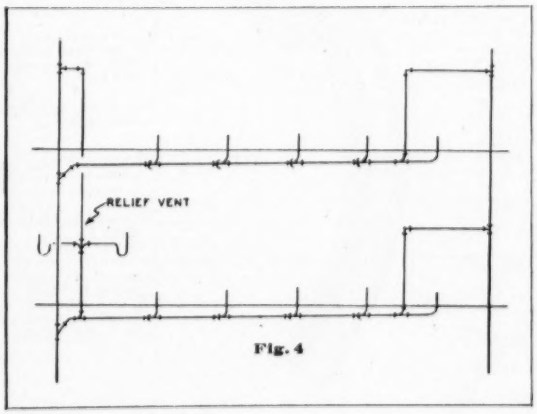

Fig. 4

counterflashed and made weather-proof, and shall terminate not less than ten feet inside of the outside walls on the north or south sides of building. On buildings facing north and south, vents shall extend not less than eight inches above the roof, and must be flashed and counterflashed and made weather-proof and terminate not less than ten feet inside of the outside walls on the east or west sides of buildings."

We were surprised to find that comparatively few plumbing codes actually require continuous vents. We know full well that exceedingly few cities allow crown vents, but demand continuous vents, and yet the average code says nothing on the subject. It is of enough importance to be made a definite provision in all codes. In some cases the wording is so ambiguous that it would appear that crown vents are actually required, while in other instances apparently the old crown vent practice is still allowed to remain in the code, whereas the practice that is actually demanded is the use of continuous venting. Two of the Connecticut cities, which in practice call for modern methods of installation, are examples of this. Waterbury, for instance, has this: "Every trap shall be separately vented and protected from siphonage by branch ventilating pipe connecting with main drain line of ventilating pipe, as before specified. These vent pipes shall be attached to crown of trap where practicable." Norwalk has the

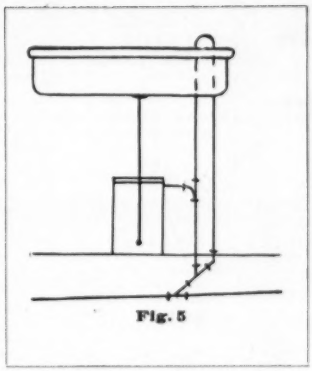
Fig. 5

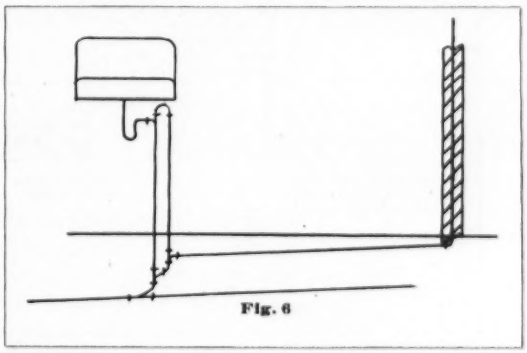
Fig. 6

following: "Branch vent pipes if crown vented, should be not more than one foot six inches from trap."

Under "General Vent Requirements," practically all codes ask for the venting of all traps. This, of course, would not mean that each trap, regardless of its location and surrounding conditions, required a separate or individual vent. On the other hand, most excellent venting is obtained by stack-venting, etc. With this in mind, the Mobile, Ala., code and several other codes, cover the point very satisfactorily by the following: "Every fixture trap shall be protected against siphonage and back pressure, and air circulation assured, by means of a soil or waste vent, a continuous vent, a stack vent, or a loop or circuit vent."

These several forms of venting are shown in Figs. 3 and 4.

A, in Fig. 3, shows the use of a soil or waste vent. A soil vent is the extension of a soil stack, that is, a stack serving one or more water closets, after it has passed the last fixture. In the case of a stack serving only fixtures other than water closets,

(Continued on Page 97)

City	General Vent Requirements	Vents not Required	Venting of Water Closets	Circuit and Loop Vents	Wet Vents	Special Vent Requirements
Alabama						
Birmingham	Unvented non-siphon traps used extensively		Vent from T-Y, Y or drainage fitting top of horizontal or side of vertical part of lead bend	Allowed up to 8 fixtures not over 36 ins. apart, or 4 baths 6 ft. apart center to center	In case of a lower W. C. 2 fixtures with 1¼-in. waste or 1 with 1½-in. waste, may connect into vent	Sewage ejectors must have 4-in. vent. All branches over 20 ft. long, and those rising to first floor, shall pass through roof.
Gadsden			Main vent for W. C.'s in building over 4 stories, must be 3 in.			Main vents must be C. I.
Huntsville						
Mobile	No trap over 4 ins. from vent. Crown vents prohibited. Each fixture shall have a soil, waste, continuous, stack loop or circuit vent	On garage catch basin, soda fountain or cellar floor drain, if trap within 4 ft. of house drain, and branch is over 5 ft. from base of a stack	When discharge above not over 10½ fixture units, W. C. may vent from crow-foot fitting, and bath and lavatory may connect into it	Allowed for 2 to 8 W. C.'s, urinal stalls, ped. urinals, trap St. slop-sinks, or shower stalls. Taken off in front of last fixture. Relief vent required when fixtures above	2 lavatories, sinks or comb. fixtures may discharge into a soil, loop, circuit, branch or relief vent, not over 24 ins. above W. C. branches. Lavatory may discharge into bath vent	Sewage ejectors must have 4-in. vent.
Arizona						
Flagstaff	All fixtures directly or indirectly connected, to be separately vented	On top fixtures within 2 ft. of stack	W. C. vents shall enter main stack at least 3 ft. above highest fixture in system			All vent pipes under 4 ins. shall be galv. or C. I. Soil and waste vents to be of standard pipe.
Phoenix	No information except table of vent sizes					Vents must rise 6 ins. above fixture.
Arkansas						
Fort Smith	Soil vents standard pipe. Bath vents to be lead		2-in. vent for 4 W. C.'s, 4-in. for more. W. C.'s over 2 ft. from main vent to be vented			No non-siphon traps allowed.
Hope	When continuous venting not practicable every trap shall be vented	On bath traps within 24 ins. of main stack. On cellar floor drains within 3 ft. of drain	2-in. vent for 3 W C.'s and 6 other fixtures; 3 ins. for 10 W. C.'s and 20 other fixtures			
Hot Springs	Each fixture separately vented					
Little Rock	All traps vented. When fixtures one above another, lower ones to be vented	When venting is impracticable, a non-siphon trap is allowed. One W. C. not over 3 ft. from vent line, requires no vent, if no fixtures above			2 minor fixtures on same floor may connect into a revent pipe if latter is of sufficient size	Vent line for batteries of fixtures shall be not less than one-half area of waste line.
California						
Alameda			Vents for W. C.'s on 2d, 3d and higher floors, to be 4 ins. See text for further data			All W. C. vents and vents of other fixtures in same room with W. C. must extend 2 ft. above roof.
Alhambra	Vent shall not be over 2 ft. from trap. All vents to rise 6 ins. above fixture		Where possible, vent from the fitting	Allowed on 2 or more W. C.'s, showers or urinals. When over 8 W. C.'s an extra 4-in. vent shall be used for each additional 8 or fraction thereof; 2 ins. for urinals or showers		Horizontal vents shall not exceed 15 ft.
Anaheim		For top fixtures within 2 ft. of stack				All vent pipes within radius of 20 ft. may converge into one vent line.
Bakersfield	Branch vents shall be at least 3½ ft. from floor line		2-in. vent for 3 W. C.'s, 2½-in. for 4 to 6; 3-in. for 7 to 10; 4-in. for 11 or more			Each fixture in a battery separately vented.
Berkeley	Vent shall not be over 2 ft. from trap			Allowed on batteries of W. C.'s, urinals, basins, etc.		All vent pipes under 3 ins. to be galvanized. Vent intersections at least 3½ ft. above floor.
Eureka			W. C.'s within 3 ft. of stack may be stack-vented; other fixtures 2 ft			Horizontal branch vents not to exceed 5 ft.
Fresno	Vent intersections at least 3½ ft. from floor		Same as Bakersfield, Cal			A drip plug to be placed at foot of vertical vent lines.
Fullerton		For top fixtures within 2 ft. of stack	2-in. vent for 2 W. C.'s, 2½-in. for 3 to 4; 3-in. for 5 to 8; 4-in. for over 8			All vent pipes within radius of 20 ft. may converge into one vent line.
Glendale	Vent intersections shall be 6 ins. above water line of fixture	For top fixtures within 2 ft. of stack	Where possible, vent from the fitting 2 ins. for 4 W. C.'s, 2½-in. for 5 to 8; 3-in. for 9 to 14; 4-in. for 15 to 24			
Long Beach	Vents shall rise at least 3 ft. above floor. Sink and laundry vents to join	For top fixture within 2 ft. of stack				All vent pipes shall be of galvanized or C. I.
Los Angeles	Vent intersections shall be 6 ins. above top of fixture					Replacement of old unvented fixtures calls for venting of the new fixtures. Vents from horizontal lines shall be made with Y branch.
Merced	Vent intersections shall be 3½ ft. above floor	For top fixtures within 2 ft. of stack	2-in. vent for 1 to 3 W. C.'s, 2½-in. for 4 to 5; 3-in. for 6 to 8; 4-in. for 9 or more			All vents, under 3 ins. shall be galv.; larger, galv. or C. I.
Monrovia	Vent intersections shall be 6 ins. above top of fixture		2-in. for 4 W. C.'s, 2½-in. for 5 to 8; 3-in. for 9 to 14; 4-in. for 14 or more			All vent pipes within radius of 20 ft. may converge into one vent line. Vents from horizontal lines shall be made with Y branch.
National City	Vents to be taken off not over 1 in. below seal of trap	For top fixtures within 2 ft. of stack	2-in. for 4 W. C.'s 2½-in. for 5 to 12; 3-in. for 13 to 25			All vent pipes shall be of galvanized or C. I. A drip plug to be placed at foot of vertical vent lines.

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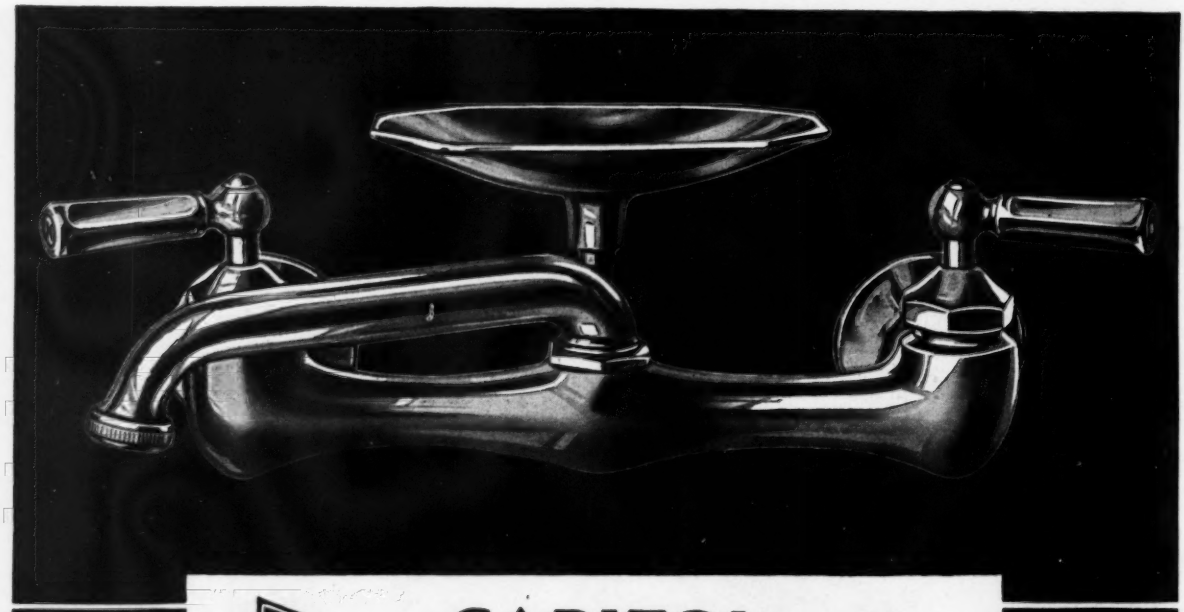

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DETROIT ~ MICHIGAN

City	General Vent Requirements	Vents not Required	Venting of Water Closets	Circuit and Loop Vents	Wet Vents	Special Vent Requirements
Oakland	Vent shall not be over 30 ins. from trap. Vent intersections shall be 3½ ft. above floor		2-in. for 4 W. C.'s, 2½-in. for 5 to 8; 3-in. for 9 to 15; 4-in. for more than 15	Allowed for batteries of W. C.'s and small fixtures		Stacks in buildings 10 stories or higher shall be cross connected at each 5th floor.
Orange	Vent shall not be over 2 ft. from trap. Vents off horizontal shall be through Y	For top fixtures within 2 ft. of stack				All vent pipes within radius of 12 ft. should converge to one vent line. All vent pipes shall be of galvanized or C. I.
Palo Alto	Vent intersections shall be 3½ ft. above floor		2-in. for 3 W. C.'s, 2½-in. for 4 to 5; 3-in. for 6 to 8; 4-in. for 9 or more			1½-in. horizontal vent shall not exceed 10 ft.
Pasadena	Vent shall not be over 2 ft. from trap. All vents to rise 6 ins. above level of fixture.	For top fixtures within 2 ft. of stack	W. C. vents should be taken from Y. 2-in. for 4 W. C.'s, 2½-in. for 5 to 8; 3-in. for 9 to 14; 4-in. for 15 to 24. 2 W. C.'s may have unit vent			All vent pipes under 2 ins. shall be of galvanized or C. I. All vent pipes within radius of 15 ft. should converge to 1 vent line.
Redwood City	Vent intersections shall be 3½ ft. above floor		2½-in. for 4 W. C.'s			
Riverside	Vent intersections shall be 3 ft. above floor					When impracticable to vent, drum traps shall be used.
Sacramento	Vent intersections shall be 3½ ft. above floor. Continuous vents required		2-in. for 8 W. C.'s, 2½-in. for 9 to 12; 3-in. for 13 to 18; 4-in. for over 18			All vents must be galvanized or standard C. I., but not both.
San Bernardino	Vent intersections shall be 3 ft. above floor. Vent shall not be over 2 ft. from trap	For top fixtures within 2 ft. of stack	2-in. for 4 W. C.'s, 2½-in. for 5 to 8; 3-in. for 9 to 12; 4-in. for more than 12	Not over 16 W. C.'s may be installed on a 4-in. soil line and circuit vent		Vent pipes must be galv. W. I. Vents must increase in size every 30 ft.
San Diego	Vent shall not be over 2 ft. from trap			16 W. C.'s on a 4-in. horiz. soil line; if more than 16, a 2-in. relief vent should be used at center of each 16. Relief vent used when fixtures are above. See text for additional data	No vent pipe shall be used as waste pipe	2 or more vent pipes within 3 ft. of each other in same partition must connect before passing through roof.
San Francisco	Vent shall not be over 2 ft. from trap. Vent intersections shall be 3½ ft. above floor		2-in. for 3 W. C.'s, 2½-in. for 4 to 5; 3-in. for 6 to 8; 4-in. for 9 or more			A deck trap supplied through a fixture shall have a 2-in. vent.
San Jose	Continuous vents required. Vent shall not be over 2 ft. from trap					When impracticable to vent, drum traps shall be used.
San Mateo	Vent intersections shall be 3 ft. above floor. No branch vent longer than 20 ft.		2-in. for 3 W. C.'s, 2½-in. for 4 to 5; 3-in. for 6 to 8; 4-in. for 9 or more			All vent pipes shall be galvanized or C. I. Main vent to connect to stack below lowest fixture.
Santa Ana	Continuous vents required. Vent shall not be over 2 ft. from trap	For top fixtures within 2 ft of stack	Venting from closet bend prohibited		No vent pipe shall be used as waste pipe	All vent pipes shall be galvanized or C. I. A vent intersecting another shall not exceed 12 ft.
Santa Barbara	Vent intersections shall be 3½ ft. above floor		2-in. for 4 W. C.'s, 2½-in. for 5 to 8; 3-in. for 9 to 12; 4-in. for 13 to 24			
Santa Monica	Vent shall not be over 2 ft. from trap. All vents to rise 6 ins. above top of fixture					All vent pipes shall be galvanized or C. I. All vent pipes within radius of 12 ft. should converge to 1 vent line.
Santa Rosa	Vent intersections shall be 3½ ft. above floor	Sink or wash trays discharging into a hopper need not be vented				Lead vents not to exceed 5 ft. Vent pipes of chamber lavatories shall not connect with soil pipe or W. C. vent.
Stockton	Vent pipes shall not be over 3½ ft. from trap. Vent intersections shall be 3 ft. from floor		2-in. for 12 W. C.'s, 2½-in. for 13 to 25; 3-in. for 26 to 35; 4-in. for 36 to 50			
Ventura	All vents to rise 6 ins. above level of fixture		2-in. for 4 W. C.'s, 2½-in. for 5 to 8; 3-in. for 9 to 14; 4-in. for 15 to 24			All vent pipes smaller than 3 ins. shall be galvanized. Horizontal vents shall not exceed 15 ft.
Watsonville	Vent pipes shall not be over 2½ ft. from trap					All vent pipes shall be galvanized or C. I.
Colorado						
Canon City	Vent intersections 12 ins. above highest fixture		All W. C.'s to be vented if over 5 ft. from stack. When over 10 ft. from stack, vent carried through roof			Main vents shall not connect to soil stacks but shall run through roof in buildings 3 or more stories high.
Colorado Springs	Vent intersections 12 ins. above highest fixture					Main vents shall run separately through roof in buildings over 3 stories.
Fort Collins	Vents from 2 or more fixtures may connect at least 20 ins. above highest fixture		All W. C.'s must be vented if over 6 ft. from stack, and when 20 ft. from stack soil pipe must extend through roof	In business blocks 3 stories or higher, where batteries of 2 or more W. C.'s are on different floors, discharging to same stack, loop venting may be used		
Trinidad	Vents from 2 or more fixtures shall connect 1 ft. above highest fixture		All W. C.'s must be vented if over 6 ft. from main vent			When all lead vent is used, it shall have a trap screw wiped in not over 6 ins. above connection with trap. Main vents shall run separately through roof in buildings 3 stories or higher.
Connecticut						
Bridgeport	Vent connections shall be above top of highest fixture. Vents shall connect with top of trap		W. C. vents shall be from highest point of bend	Batteries of W. C.'s or other fixtures may have circuit or loop vents		Main vents shall connect into stack at the bottom.

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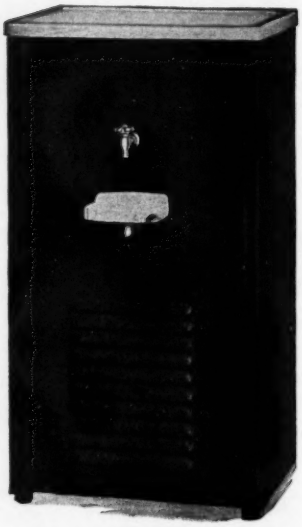
that come to you ready to "plug in"

No. 751

No. 758



No. 759

In answer to the universal demand for self-contained, ready installed water coolers, Trupar announces the Mayflower Water Cooler that comes to you ready to "plug in."

The same standard of performance that marks the Mayflower Refrigerators is maintained in these Mayflower Water Coolers. They are efficient, beautiful, quiet, and absolutely dependable.

No. 751 is for connection to city water lines. It has the bubbler type of fountain, with the refrigerating unit already installed.

No. 758 is a portable cooler using bottled water, and needs only plugging into socket.

No. 759 is city water with faucet outlet. Refrigeration unit shipped ready to operate.

Mail the coupon for complete details. The market for water coolers is practically unlimited. With the Mayflower line you can greatly increase your late Summer and Fall business.

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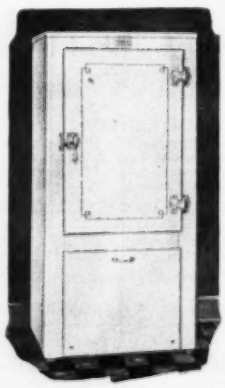

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the extension through the roof after passing the highest fixture would be called a waste vent. In the case of A it will be seen that the water closet is actually wet vented by the connection of the two fixtures into the soil vent, but this is universally considered good practice. A few cities are to be found, however, which would not allow the practice

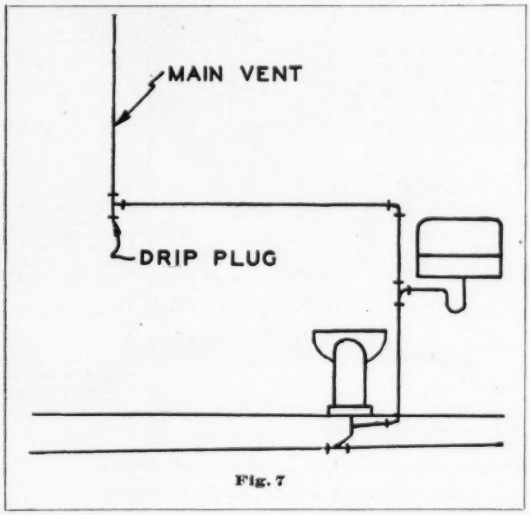

Fig. 7

shown by A, but would demand individual vents not only for both elevated fixtures, but for the top water closet as well.

Circuit Vent

B shows how a circuit vent can be used for connecting two such fixtures as lavatories, sinks, drinking fountains, etc., and C shows a loop vent similarly used, as a waste and vent for a pair of bath tubs.

Not only is the connection of one or two of the minor fixtures into a circuit vent or loop vent admissible under most modern plumbing codes, but such a connection is most desirable, as a means of washing the foot of the vent, thus carrying off any possible collection of scale, sediment, etc.

Relief Vent

Fig. 4 shows a relief vent, such as used on circuit or loop vent systems, made use of for the connecting of one or two elevated fixtures.

Each and every trap on the plumbing system requires a supply of air to overcome any possible tendency to siphonage, and so long as this air can be supplied, it does not matter whether it is the common continuous vent which is especially installed for the fixture, or whether it is one of the forms of venting such as shown in Figs. 3 and 4. For the venting shown in these two illustrations, it should be said that whenever possible to make use of them it should be done, for the reason that it saves the installing of a special vent, and thereby cuts the cost of installation just that amount. This saving will often be found well worth while.

By-Pass Venting

Flagstaff, Ariz., has a requirement which if enforced would lead to bad results. This requires that all fixtures directly or indirectly connected, shall be separately vented. When a fixture that has an indirect connection is vented, a by-pass is always created. This is shown in Fig. 1, the by-pass being formed as shown by the arrows.

It will be noted that many plumbing codes demand that the vent shall not be farther from the trap than 2 ft. A few codes allow a distance of 3 ft. Those cities, however, which are following the requirements of the Hoover code, allow a maximum distance of 5 ft. between the trap and the vent. This Hoover code requirement is the following: "No trap shall be placed more than 5 ft., horizontal developed length, from its vent. The distance shall be measured along the central line of the waste or soil pipe from the vertical inlet of the trap to the vent opening. The vent opening from the soil or waste pipe, except for water closets and similar fixtures, shall not be below the dip of the trap."

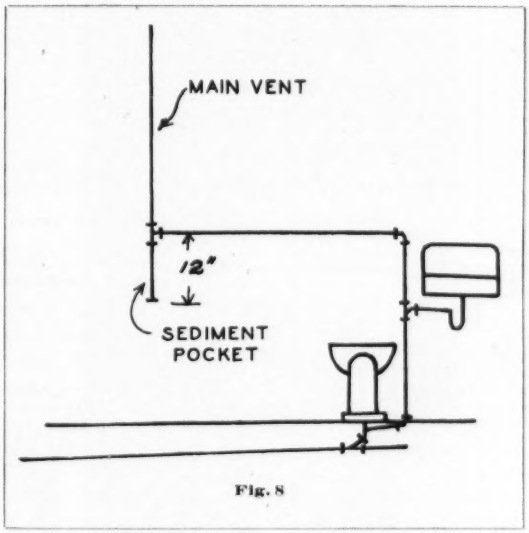

Fig. 8

Distance of Vent from Trap

So far as we know, the distance that it is safe to connect a vent from the trap, had never been definitely calculated until the Hoover Commission made a scientific study of the subject. Their findings showed that it was safe to place the vent much further away from the trap than was being done in common practice.

On page 57 of the Hoover report, the following information will be found:

"From the standpoint of self-siphonage the slope should lie between one-eighth and one-half inch per foot and the outlet should not be below the dip of the trap. Doctor Hunter's experiments show that in the case of wash basins, plain traps of 2 to 4-inch seal, connected to horizontal wastes of 4 to 8 ft., would be safe against siphonage, and in the case of wide bottom fixtures the lengths might be about twice as long, with one 90 deg. elbow not more than 18 inches from the trap. But on the basis of all the evidence at hand, the committee decided that 5 ft.

City	General Vent Requirements	Vents not Required	Venting of Water Closets	Circuit and Loop Vents	Wet Vents	Special Vent Requirements
Derby	Vent connections shall be above highest fixture	Non-siphon traps may be used without vents	Vent for W. C. may be 1½ in.			All vent pipes shall be galvanized or C. I.
Hartford	Continuous vents required		W. C. vents shall be from horizontal part of bend, or to a vent hub on fitting	Batteries of W. C.'s may have circuit or loop vent		Drum traps shall be vented from the trap, or from the outlet, but not through the trap cover.
Meriden	Continuous vents required	For top W. C.'s within 3 ft. of stack; for other fixtures within 18 ins. of stack	2-in. for 4 W. C.'s; 3-in. for more than 4			For fixtures 8 ft. from main vent, separate vent must be carried above all fixtures or through roof.
New Britain	Vents may be taken from the crown or from top of waste near trap	For W. C.'s less than 10 ft. from main soil pipe		4 to 8 W. C.'s or other fixtures may have circuit or loop vent taken in front of last fixture. Each such branch shall have a relief vent when fixtures discharge above.		
New Haven	Vents must be 6 ins. to 2 ft. from crown of trap			Batteries of W. C.'s or urinals with floor wastes may have circuit or loop vents		All vent pipes shall be of iron, steel or brass. Main vents must pass directly through roof when fixtures are on more than 6 floors. No branch vent can exceed 50 ft. in length.
New London		For W. C. within 4 ft. of stack on top floor, with no other fixtures				
Norwalk	Branch vent pipes if crown vented shall not be over 1½ ft. from trap					Vent pipes under floors to be lead. Main vents must pass directly through roof when fixtures on more than 4 floors.
Stamford	Continuous vents required	Not necessary to vent W. C.'s except when there are 2 or more on vertical or horizontal lines. Drinking fountains need not be vented		Right to use circuit vents implied, but not defined		
Torrington	All siphonable traps must be vented	For highest W. C. if within 3 ft. of stack, other fixtures if within 2 ft	W. C.'s within 8 ft. of stack require no vent	Closets over 8 ft. from stack may be vented by a 4-in. loop vent		In 2-family houses where highest fixture not over 25 ft. above house drain, unvented non-siphon traps may be used within 8 ft. of stack.
Waterbury	1¼-in. vents used for other than W. C.'s, 1½-in. for 2 fixtures; 2-in. for more than 2	W. C. vents may be omitted at discretion of inspector when fixture-outlet not over 2 ft. from main				All vent pipes shall be of C. I., galv., W. I. or brass, except immediate trap connections of lead.
Delaware						
Wilmington	Vent pipes shall not be over 2 ft. from trap	Small fixtures in basement require no vent. Bath traps within 8 ft. of vent stack, require no vent	A W. C. over 8 ft. from stack shall be vented	Allowed on batteries of 2 to 8 W. C.'s ped. urinals, trap St. slop sinks or showers. Shall connect in front of last fixture		All fixtures above 1st floor in old buildings over 8 ft. from 3 or 4-in. stacks, shall be vented. All fixtures above 1st floor requiring a vertical waste, to be through vented.
Dist. of Columbia						
Washington	Vent intersections shall be 3 ft. from floor. Continuous vents required	Top or only W. C. if within 2 ft. of stack, requires no vents		Allowed on batteries of 2 or more W. C.'s or other fixtures. One size larger vent required than in individual venting	In wet vent work, the small fixture waste must enter closet bend, and the last fixture on the line must be a lavatory	Floor drain traps shall be vented. When fixture over 6 ft. from stack vent may be carried through roof.
Florida						
Bartow	Continuous vents required		2-in. for 3 W. C.'s, 3-in. for 6; 4-in. for 12; 5-in. for 18; 6-in. for 24	6 W. C.'s or 4 lavatories may have circuit or loop vent	Continuous or wet vent system used if possible	
Daytona		When all fixtures are on ground floor and not over 5 ft. from stack no vents required. Likewise for top floor fixtures	2-in. for 4 W. C.'s, 3-in. for 8; 4-in. for 16; 5-in. for 32; 6-in. for 48	6 W. C.'s or 4 lavatories may have circuit or loop vent	Continuous or wet vent system used if possible	Galvanized vents not allowed.
Jacksonville			2-in. for 3. W. C.'s, 3-in. for 6; 4-in. for 12; 5-in. for 18; 6-in. for 24	6 W. C.'s or 4 lavatories may have circuit or loop vent	Continuous or wet vent system used if possible	
Miami	Vent pipes shall not be over 5 ft. from trap. Vent intersections shall be 6 ins. above the fixture	On garage or soda fountain catch basins or floor drain when within 15 ft. of drain, and branch is taken 5 ft. or more from a stack	A W. C. where discharge from floor above not over 10 fixture units, may be vented from side inlet. Vent may receive lav., bath or shower	2 to 12 W. C.'s may be circuit or loop vented. Other fixtures also, as per text	2 lavatories or 2 baths may discharge into a 2-in. soil, loop, circuit, branch, relief or common vent when on same floor	Sewage ejectors shall be vented.
Miami Beach	Minor fixtures vented not over 5 ft. from trap; major fixtures 3 ft., 2 ft. vertically	For top floor fixtures within 3 ft. of stack	2-in. for 4 W. C.'s, 2½-in. for 5 to 8; 3-in. for 9 to 14; 4-in. for 15 to 24		Continuous or wet vent system used if possible	All vents shall rise in nearest partition 4 ins. above floor.
Okeechobee	Continuous vents required		When 2 W. C.'s on one stack, lower W. C. must be vented			When impossible to vent, drum or anti-siphon traps may be used.
Palm Beach			2-in. for 3 W. C.'s, 3-in. for 6; 4-in. for 12; 5-in. for 18; 6-in. for 24	6 W. C.'s or 4 lavatories may have circuit or loop vent		When impracticable to vent, or fixture is away from the wall, a non-siphon trap may be used.
Pensacola	Each trap shall have a vent taken from the crown		When 2 or more W. C.'s connect to same soil line, each shall be vented			
St. Petersburg	Vent pipes shall not be over 5 ft. from trap. Vent intersections shall be 6 ins. above fixture	On garage or soda fountain catch basins or floor drains when within 15 ft. of drain, and branch is taken 5 ft. or more from a stack	A W. C. when discharge from floor above not over 10 fixture units, may be vented from side inlets. Vent may receive, lav., bath or shower	2 to 8 W. C.'s, urinal stalls, pedestal urinals, trap st. slop sinks or shower stalls may have circuit or loop vents	2 lavatories or 2 baths may discharge into a 2-in. soil, loop, circuit, branch or relief vent when on same floor	Traps serving fixture branches connecting directly to a stack below a W. C. on the same stack shall be vented.

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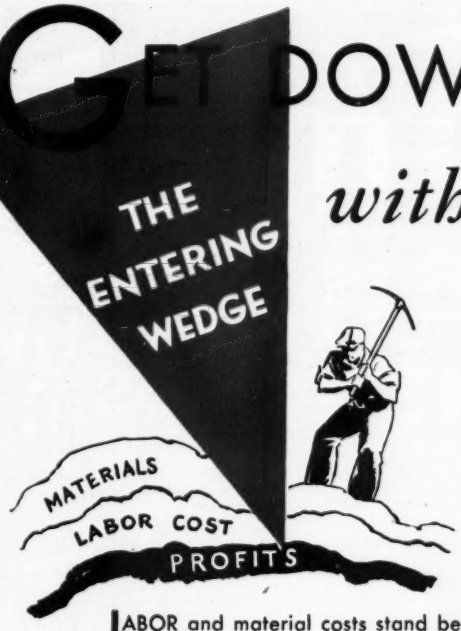

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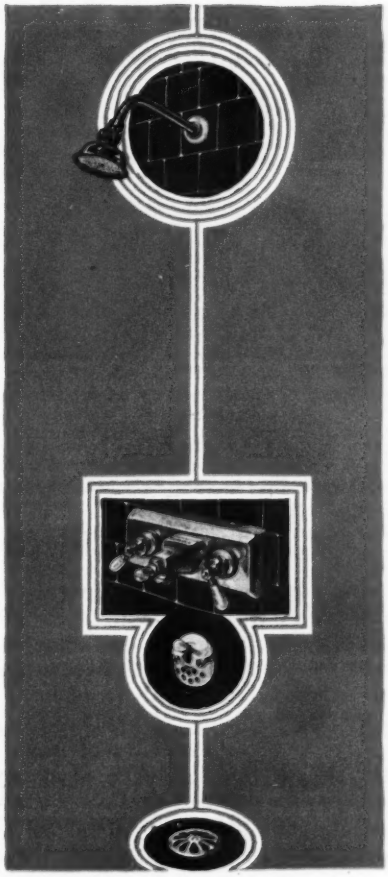
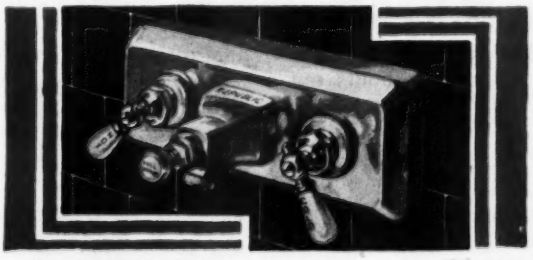


Onawall Bath and Shower Fixture

ONAWALL



THE ENTERING WEDGE TO MORE JOBS MORE PROFITS

REPUBLIC BRASS GOODS

City	General Vent Requirements	Vents not Required	Venting of Water Closets	Circuit and Loop Vents	Wet Vents	Special Vent Requirements
Tampa	Vent pipes shall not be over 5 ft. from trap. Vent not required on drum trap to 4-in. closet bend, when distance from hub to trap not over 7 ft	On garage or soda fountain catch basins or floor drains when wit' in 15 ft. of drain, and branch is taken 5 ft. or more from a stack	A W. C. when discharge from floor above not over 10 fixture units may be vented from side inlets. Vent may receive lav., bath or shower.	2 to 8 W. C.'s, urinal stalls, pedestal urinals, trap st. slop sinks, shower stalls or lavatories may have circuit or loop vents	2 lavatories or 2 baths may discharge into a 2-in. soil, loop, circuit, branch or relief vent when on same floor	Sewage ejectors shall be vented. Traps serving fixture branches connecting directly to a stack below a W. C. on the same stack shall be vented.
Georgia						
Albany	Vent pipes shall not be over 5 ft. from trap. Vent intersections shall be 6 ins. above fixture	On leaden traps, subsoil, or cellar drains if they branch into drain 5 ft. or more from stack		2 to 8 W. C.'s, urinal stalls, pedestal urinals, trap st. slop sinks or shower stalls may have circuit or loop vent. Relief vents shall be used		Sewage ejectors shall be vented.
Atlanta	Vent pipes shall not be over 5 ft. from trap. Vent intersections 3½ ft. above floor.	On subsoil or cellar drains when latter connects through indirect connection	Not over 10 W. C.'s on a circuit or loop vent. All fixtures below W. C.'s must be vented	Circuit and loop vents permitted for W. C.'s, urinals, trap st. slop sinks, showers, floor drains, bath tubs and other fixtures with floor outlets	2-in. revent may receive 1 lavatory, bath or other fixture horizontal length not to exceed 8 ft. See text	Fixtures other than W. C.'s may connect to stacks without venting under certain conditions. See text.
Augusta	Vent intersections shall be 1 ft. above overflow	Important exemptions. See text	2-in. for 3. W. C.'s, 3-in. for 6; 4-in. for 12	6 W. C.'s or 4 lavatories may have a circuit or loop vent.		When inpracticable to vent, non-siphon traps may be used.
Columbus		Siphon W. C.'s require no vent. Top floor W. C. requires no vent			Combination vents for W. C.'s and baths allowed	
Valdosta		Top floor W. C. requires no vent if with 30 ins. of stack	1¼-in. vents for W. C.'s, 2-in. for 4 W. C.'s, 3-in. for 6; 4-in. for 12	6 W. C.'s or 4 lavatories may have a circuit or loop vent.	A revent may receive wastes, combined area of which is not over twice area of revent	
Idaho						
Boise City	Vent pipes shall not be over 3 ft. from trap		A W. C. within 5 ft. of a main soil line, requires no vent	Allowed on W. C.'s and lavatories	Prohibited	On old work, lavatories may have non-siphon trap.
Caldwell	Vent pipes shall not be over 18 ins. from trap	Drum traps need not be vented	Top W. C. if within 18 ins. of stack need not be vented if a vented fixture enters bend.			

should be established as a reasonable limit for the length of an unvented horizontal waste, measured horizontally from the vertical inlet of the trap to the vent opening."

Again on page 146, the following additional information is given:

"From a consideration of the subject of limitation of length of small waste branches from all standpoints, facility of drainage, self-scouring of waste lines, circulation of air, self-siphonage, stoppage of vents, some of which are mutually conflicting in their requirements, the following is suggested as a solution:

"1. That the developed length of an unvented horizontal waste be limited to 6 ft.

"2. That the developed length of an unvented horizontal waste from a washbasin or other oval-bottomed fixture be limited to 4 ft. for traps with nominal 2-inch seals and 6 ft. nominal 3-inch, or more, seals.*

"3. That a horizontal section of the vented portion of a waste be limited to 6 ft., except when the vent is the continuation of a vertical portion of the waste, in which case it may be extended to $d = \frac{b}{a} - c$ (see Fig. 63, our Fig. 2), section b being in general the length necessary to make the connection from the fixture to the vertical section, c, in the partition or wall, limited always by the condition pertaining to an unvented horizontal waste.

"4. That whenever practical a vent be the continuation of a vertical section of the waste."

Caldwell, Idaho, goes to the extreme of demanding that vents should not be connected farther than 18 ins. from the trap. However, it is well that most plumbing codes have been a considerable distance inside the safety limit, rather than to have exceeded this limit.

Connection of Branch and Main Vents

Another point that the first column of the tabulation takes up is the level at which individual vents should connect into branch vents or at which branch vents should connect into main vents. These distances are variously set at 3 ft. and 3½ ft. from the floor, at 6 ins. above the top of the highest fixture, at 6 ins. above the overflow line of the highest fixture, etc. It seems to us that it is nothing but a sheer waste of good pipe to carry a vent higher than is necessary.

We all know, or should know, that it is necessary in the case of any fixture, to carry the vent above the overflow line of the fixture. When this requirement has been met, all additional height is entirely unnecessary. The reason for this is that if the vent intersection is made at a lower point, a stoppage on the waste pipe will allow waste to pass over through the vent connection.

In the case of a group of two or more fixtures, where the several separate vents connect into a single branch vent, it stands to reason that this branch vent should not connect into the main vent line below the overflow level of the highest fixtures in the group.

Vent Connection in Relation to Overflow

We think that it is more exact and more satisfactory in specifying the height of vent intersections, to require the intersection to be made above the overflow line, rather than at any particular distance from the floor or above the fixture. We can

* The plumbing committee later agreed on a maximum developed length of 5 feet permissible for horizontal unvented waste pipes for all fixtures.

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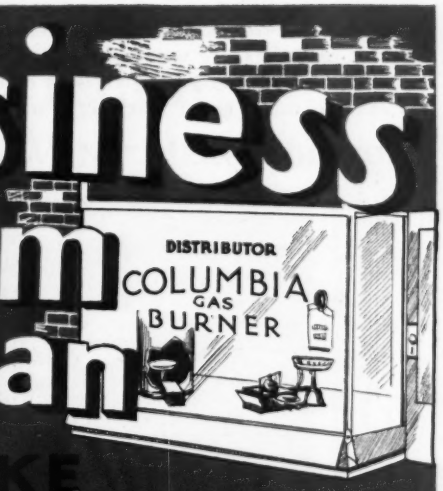

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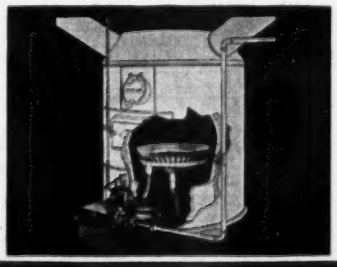
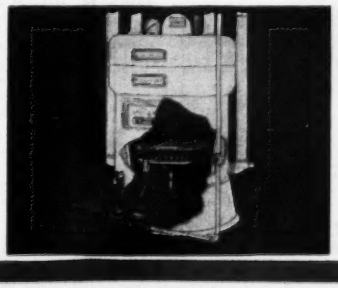
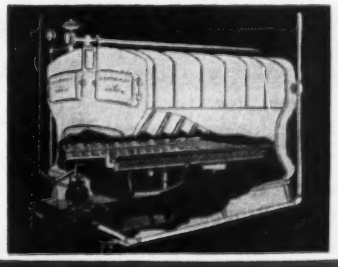






conceive that in the case of such a fixture as a sink or a lavatory, there might be a question as to whether the top of the fixture was to be considered the upper edge of the back, or the overflow level. It is just as easy to make exact statements as to make those that are not entirely clear, and in stating plumbing requirements, they cannot be made too clear.

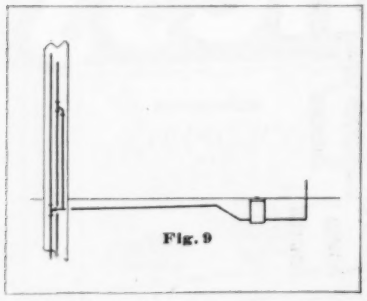


Fig. 9

The Flagstaff, Ariz., code has an ordinance which illustrates the matter of unnecessary requirements,—"Back vent pipes from water closets shall not re-enter main stack less than three feet above the highest fixture in the system."

Venting Fixtures in Center of Room or Away from a Wall

Two of the California cities, Oakland and Berkeley, have illustrated requirements for the venting of fixtures that are at the center of a room, or away from a wall. Fig 5 shows the Oakland method and Fig. 6 the Berkeley.

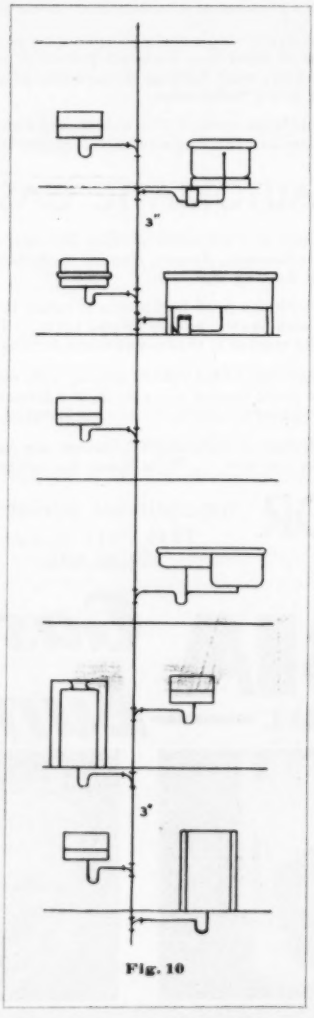


Fig. 10

If Fig. 6 had the vent rising above the fixture before returning to the waste, we would like that method far better, but as it now stands, in the event of stoppage of the waste of Fig. 6, waste could flow through the vent and continue to do so until the vent also had become clogged. The right way is to run the loop to a height above the fixture, as in Fig. 5. In the latter connection, however, we cannot see how the vent can actually vent the trap, for with the waste running full, any possible supply of air is shut off, except for that which is standing in the vent.

Vent Cleanouts to Prevent Stoppage

Two other California cities, Fresno and Stockton, have a provision relating to venting that we are unfamiliar with, shown respectively in Figs. 7 and 8. In both instances the object is to provide means of cleaning out possible stoppage of a vent from the accumulation of rust, scale and sediment, under circumstances where it is impracticable to drain the bottom of the vent into a waste or soil line. In the case of Fig. 7 a plug is used at the low point where the vent turns off, the purpose of this being to clean out stoppages. In the case of Fig. 8 the 12-in. extension of the vent allows room in which stoppage may accumulate. As a matter of fact we do not think either method is of special value, largely for the reason that once the plumbing system is installed, a vent stoppage would seldom if ever become known. The best way would be to lay the work out and run it in such manner that such collections would drain into the waste or soil piping. Probably the most common offender in this respect is the vent that is taken from the water closet bend. Often this vent is taken off horizontally and turned up with a 90-degree bend, allowing no opportunity whatever for the vent to drain.

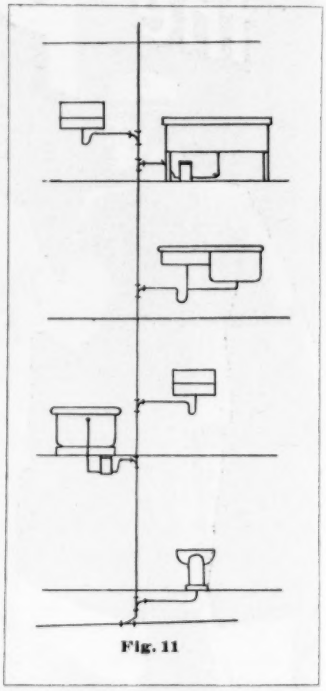


Fig. 11

Venting Drum Trap

Berkeley, Calif., and quite a few other cities call for the venting of dental cuspidors or other fixtures whose traps set well out into the room, after the manner shown in Fig. 9. Most of these ordinances call for a drum trap to be used under such conditions, and we have sufficient dependence on the drum trap, to feel that if venting conditions were as difficult as shown in Fig. 9, we would prefer to use the drum trap without a vent. We would think it just as effective without the vent as with it.

The Atlanta, Ga., plumbing code handles the venting of fixtures other than water closets in a way that is unusual. The method is shown in the following provisions:

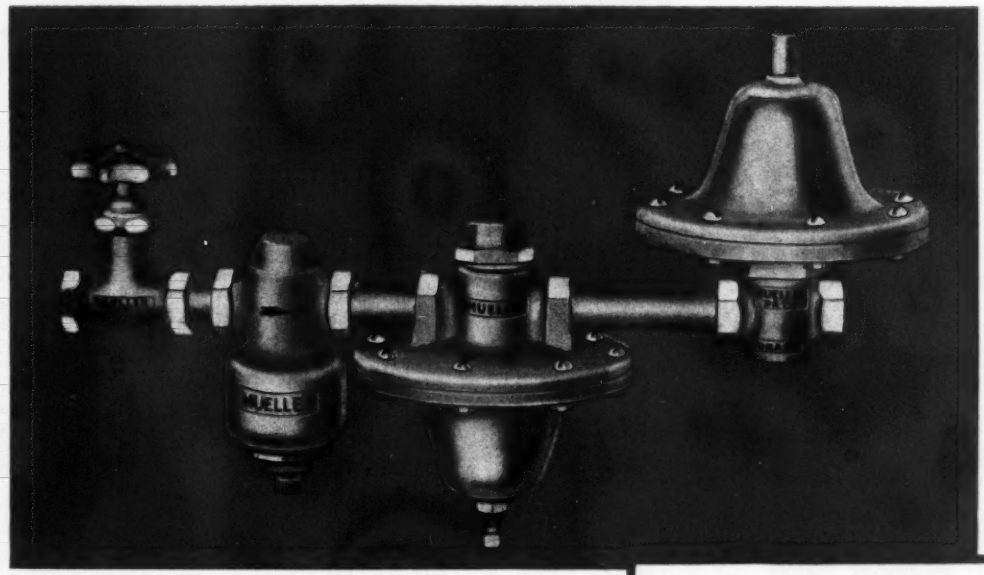
"Lavatories, showers, floor drains, bath-tubs, sinks,

Table No. 12

Diameter of Stack	Largest Trap Connected	Maximum Number of Fixture Units Connected	Maximum Length of Stack Allowance
3-in.	2-in.	20	125 ft.
4-in.	3-in.	85	225 ft.
5-in.	3-in.	150	300 ft.

No expansion tank required

on Mueller Automatic System of Hot Water Heat Control



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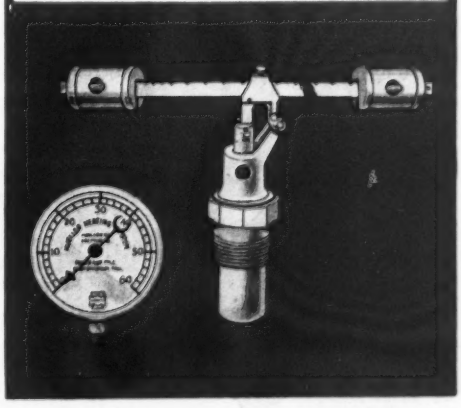

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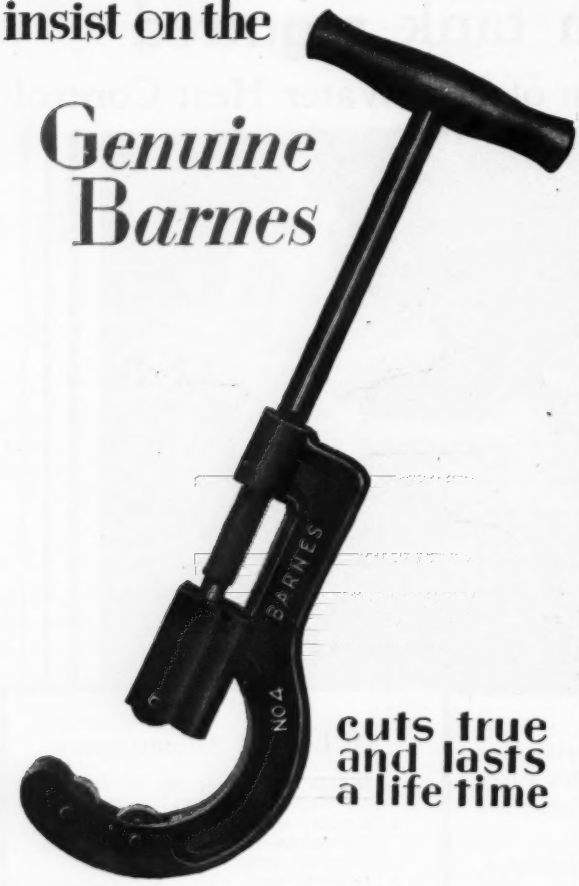

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slop sinks and similar fixtures, may be connected to vertical stacks without revents, under the follow- to vertical stacks without revents, under the conditions specified in Table 12.

On the above 4-in. and 5-in. stacks, two water closets, urinals and similar fixtures, may be connected on the lower story of the building, and their equivalent units to be included in the above permitted maximums. In no case will any fixture be permitted or allowed below the connection of any closet unless properly vented."

Fixture Units

Fig. 10 illustrates the foregoing provisions. There are 19½ fixture units served by this stack, and according to Table 12, this would call for a 3-inch stack. Atlanta, by the way, follows the Hoover code in the matter of fixture units, which are as follows:—

Fixture	Fixture Units	Fixture	Fixture Units
One lavatory or drinking fountain	1	One urinal	3
One flushing cuspidor	1	One shower bath	3
One kitchen sink	1½	One floor drain	3
One bathtub	2	One slop sink	4
One laundry tray	3	One water closet	6
One combination fixture	3		

However, the table shows that no fixture having a larger trap than 2 inch can be connected. This would bar the connection of a slop sink or other fixture having a floor connection of 3 in.

In another ordinance of the Atlanta plumbing code, is to be found the following:—

"On a 3-in. soil stack, one water closet or similar fixture may be connected, and above this the stack may receive the discharge from baths, sinks, lavatories and similar fixtures, having a total of not more than 10 fixture units." This ordinance is illustrated by Fig. 11.

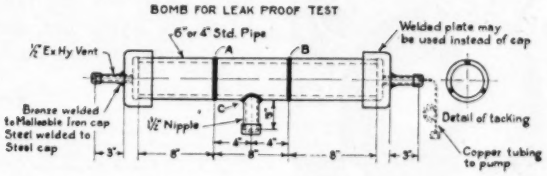
"Rule of Thumb" Calculations

THERE was a time when the amount of radiation was determined solely by the size of the room. Later, several other rule-of-thumb methods were developed. These rules may be used for estimates if sufficient allowances are made for unusual conditions.

The rule-of-thumb methods for calculating radiation requirements assume that the heat given off per square foot of radiaton is constant. This may, in some cases, lead to a serious error. The actual amount of heat emitted per square foot from a radiator depends, of course, upon the height, number of columns and number of sections of the radiator, the room temperature and the steam pressure. More heat is emitted per square foot from a low radiator than from a tall one. There will be, also, more heat per square foot from a single column radiator than from one with two or more columns. The fewer the number of sections, the more heat will be given off per square foot. The greater the difference between the room temperature and the steam temperature, the more heat will be emitted per square foot of radiator surface.

Most approximate rules that have been offered make no allowances for variations in types of buildings, or locations. Such rules indicate no difference between the requirements of a brick house in Florida and a frame house of the same size in Montana. But quite evidently the amount of radiation actually needed is very different.

How to Weld Steel *and* Wrought Iron Pipe



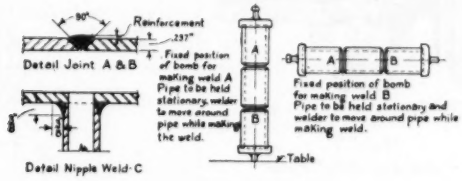

90°
Reinforcement
.237"
Detail Joint A & B
Fixed position of bomb for making weld A Pipe to be held stationary, welder to move around pipe while making the weld.
A
B
Fixed position of bomb for making weld B Pipe to be held stationary and welder to move around pipe while making weld.
Table
Detail Nipple Weld-C
Specifications for welds A & B
Position of specimens – See details A & B
Spacing – Pipe section to be spaced 1/8" for welding
Welding Method – Forward or Backward.
Reinforcement – 20% of pipe wall thickness.
Penetration – Full or to inside wall of pipe.
Width of weld – 2½ times pipe wall thickness, minimum.

Fig. 1

*Standards for welding adopted by the Heating and Piping Contractors National Association at its last convention**

THESE specifications and standards have been prepared by the educational department of the Heating and Piping Contractors National Association in co-operation with the sub-committee on welding and the editorial committee on the Standard Manual on Pipe Welding; approved by the sub-committee on welding, by the standardization committee, and by the board of directors; and were submitted to and adopted and approved by the Heating and Piping Contractors National Association at its recent convention.

General Requirements

SCOPE

1. These specifications cover the requirements for fusion welding of all steel and wrought iron piping, plain or galvanized, both standard and extra heavy weight pipe, for steam and process piping operating at pressures not exceeding 250 lb. (gage pressure) and at temperatures not exceeding 406 deg. F.

PURPOSE

2. The purpose of these specifications is to regulate and standardize the practices employed in the installation and tests of fusion welded piping and to control the materials and design only insofar as they may be affected by the use of welding.

Workmanship

GENERAL QUALIFICATIONS AND REQUIREMENTS OF WELDERS

3. All welding shall be done by competent welders and in a thoroughly first-class, workman-like manner. No welding operator shall be permitted to weld on the piping installation covered by these specifications until he has passed the following qualification tests, which shall be conducted in accordance with the instructions and provisions given herein.

4. The tests each welder shall be required to pass are given in paragraphs 5, 6 and 7. Test given in paragraph 8 may be made in place of the bend test in paragraph 7.

The contractor shall furnish, at the request of owner or his duly authorized representative, a certification that the qualification test has been made, together with information of experience and result of the qualification test for each welder who is to weld on the piping installation.

At the discretion of the owner or his duly authorized representative, each welder may, in addition to, or in lieu of certification report, be tested in the presence of the owner or his duly authorized representative and required to pass the qualification tests listed and provided for in these specifications and standards.

LEAK PROOF TEST

5. As a test of the welder's ability to execute sound leak proof welds, each welder shall make one test bomb of 4 in. or 6 in. pipe size, similar to that shown in Figure 1, which provides for two circumferential position welds and a 1½ in. nipple welded in the pipe in an overhead position.

One circumferential weld A shall be made with the pipe in a fixed vertical position.

One circumferential weld B shall be made with the pipe in a fixed horizontal position.

The preparation for welding and assembling of the test bomb shall be as shown in Fig. 1. The welder shall make these welds without turning the pipe.

(Suitable testing heads either fabricated from pipe or plate may be welded to close the ends instead of the screwed cap shown.)

The bomb shall be subjected to a water pressure test of 300 lb. per square inch after venting all air contained therein, at which pressure the circumferential welds and nipple weld shall be hammered with the 2 to 3 lb. hammer (machinist hammer recommended). At least four blows made with full arm swing shall be struck on each weld, care being exercised not to injure

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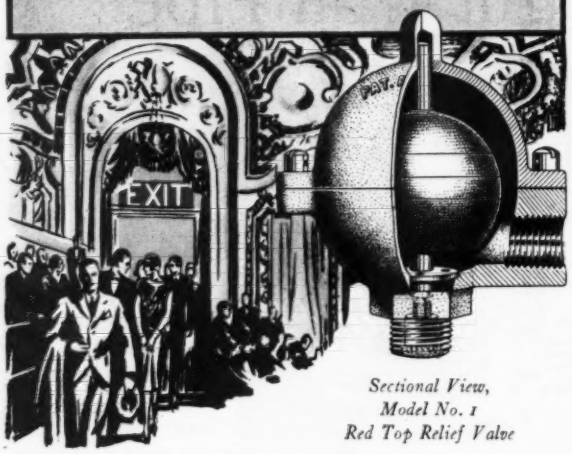
Shoulder to shoulder in the service of safety



Sectional View, Model No. 1 Red Top Relief Valve

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the pipe material. Under this test, the welds shall not leak or develop any imperfections.

Note: Pressure gage should be assembled with heavy shut-off valves and should be removed during hammer test to prevent injury to the gage.

LAYOUT TEST

6. Each welder shall be required to demonstrate his ability to lay out and fabricate fittings and other piping details by laying out and fabricating 6 in. and 2 in. nozzle connections to an 8 in. header as shown in Fig. 2.

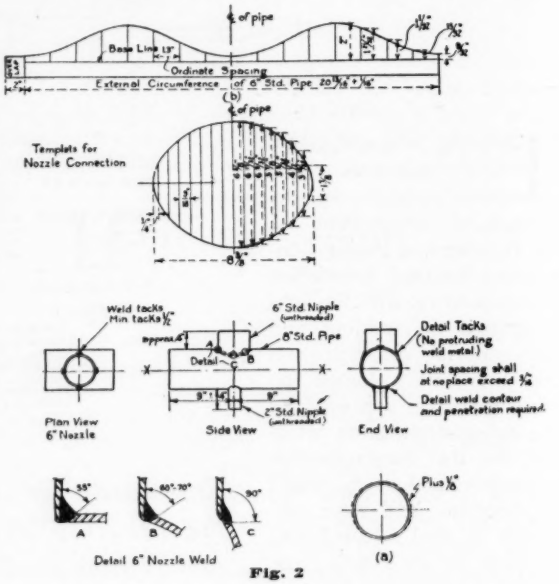


Fig. 2

Templets as shown in Fig. 2, as well as necessary material for fabricating this fitting shall be provided for the welder.

The welder shall be required to transfer the templet profile to the 2 in., 6 in. and 8 in. sections of pipe on pre-established center lines and to produce by cutting the necessary end profiles of the branches and openings in the 8 in. header to conform to details illustrated in Fig. 2. The beveling of the pieces for making the specified joints shall be done by cutting upon completion of the roughing-out cut outlined by the templets.

Upon completion of the joint preparation, the welder shall assemble the sections in the manner illustrated in Fig. 2 and tack weld together—four tacks are required for the 6 in. nozzle, which tacking may be made in position convenient to the welder; two tacks are required for the 2 in. nozzle, which tacking shall be made in an overhead position, the 2 in. nozzle pointing downward. The welds specified in Fig. 2 shall then be made by the operator.

The layout work and welding above required shall conform closely to the requirements specified in Fig. 2. The welding inspector shall judge the welder's ability to perform the necessary work and to determine his workmanship, which should meet the requirements of these standards.

BEND TESTS

7. For the bend test, two sections of 8 in. full weight standard pipe, each 9 in. long, shall be beveled and prepared for welding as shown in Fig. 3 (a) and 3 (b).

These should be set up in a *fixed* horizontal position, secured against rotation, for welding.

Test specimens shall be welded without rotating the pipe. The weld shall be started at the bottom and progress around one side to the top, then started again at the bottom, progress around the opposite side, merging at least ½ in. into the previously made weld at top.

Upon completion of the weld and cooling to normal temperature, coupons 2 in. wide and the full length of the welded specimen shall be removed therefrom by cutting. One coupon shall be taken from the bottom, one from each side and one from the top or finish.

Note: The bend coupons that shall be tested are 1, 2, 3 and 4, Fig. 3, unless tensile test in paragraph 8 is made, in which case coupons No. 5 and 6 need only be tested.

The bend test coupons shall be tested as follows:

(a) Two coupons taken from the sides shall be clamped in a vise and bent, using an extension pipe lever,

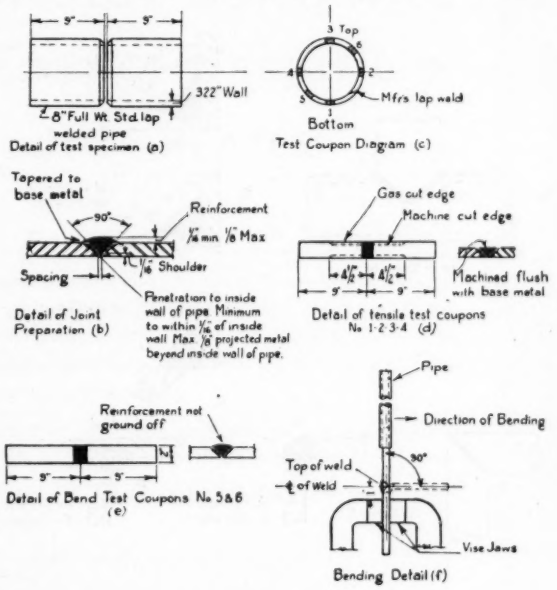


Fig. 3

as shown in Fig. 3 (f). The specimen shall bend around an angle of not less than approximately 90 degrees without any visible defects or cracks in the weld metal.

(b) Coupons cut from the top and bottom shall be tested by gripping the specimen in a vise with the weld flush with the jaws and sledging against the side from which the weld was made until the piece is bent through approximately 90 degrees. A satisfactory test specimen should not fracture in the weld under this test.

(c) The specimen should then be reversed and hammered from the opposite side until fracture occurs. The fracture of a satisfactory specimen should occur either outside the weld or, if in it, it should be in the center of the weld and shall show the following characteristics:

Appearance of Metal—Shall be bright and dense, even textured, of fibrous appearance or crystalline weld metal.

Freedom from Imperfection—The fractured metal shall be free from blowholes, slag inclusions and overlaps.

Penetration—Penetration or fusion shall extend into the unbeveled surface or shoulder of the pipe ends at the root of the joint. Specimens showing lack of fusion into the shoulder or unbeveled section of the pipe ends or fusion to side shall be rejected and another typical welded joint required for test.

TENSILE STRENGTH TEST

8. For the tensile test, two sections 6 in. or 8 in. full weight standard pipe shall be prepared for welding as shown in Fig. 3 (a) and 3 (b) and welded in a *fixed* horizontal position, secured against rotation. The weld prepared in accordance with paragraph 7 may be used for this test.

Upon completion of the weld, standard test coupons, as shown in Fig. 3 (d) shall be cut from the piping, one coupon being taken from the bottom, one from each side and one from top or finish.

The tensile test coupons shall be tested in tension until rupture occurs, in a suitable tensile testing machine.

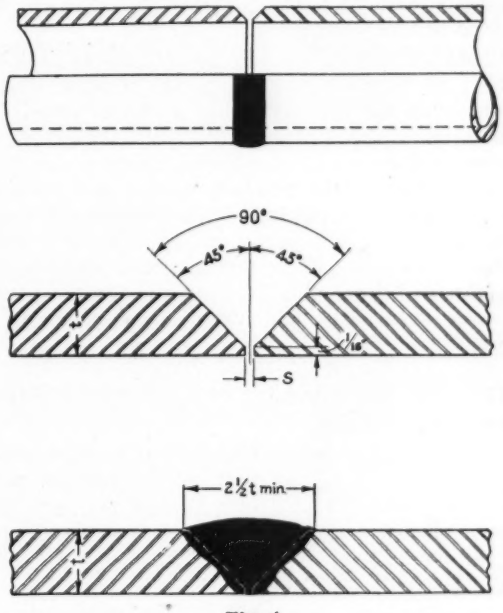


Fig. 4

(The Heating and Piping Contractors National Association will assist in having such tests made.) The speed of testing should not exceed ⅜ in. per minute within the yield point range. Under this test the coupons shall either break outside the joint or, if in the weld, shall develop an average strength of not less than 45,000 lb. per sq. in. and a minimum of 40,000 lb. per sq. in. for any coupons in the group of four tested.

OTHER TESTS

9. Where other than single vee type welds are specified, each welder shall, at the discretion of the owner or his duly authorized representative, be required to demonstrate his competency by producing welds of design specified. These welds shall be tested in accordance with, and in addition to, the requirements of paragraphs 5, 6 and 7.

Materials and Apparatus

PIPE

10. The pipe shall be commercial grade of good weldable quality, free from defects, conforming to the re-

quirements of the standard specifications of the American Society for Testing Materials as follows:

A—Welded Wrought Iron Pipe—A 72-27.

B—Welded and Seamless Steel Pipe—A 53-27.

C—Lap-Welded and Seamless Steel Pipe for High Temperature Service—A 106-29.

The pipe shall not be split, bent, flattened, or otherwise injured, either before or after installation.

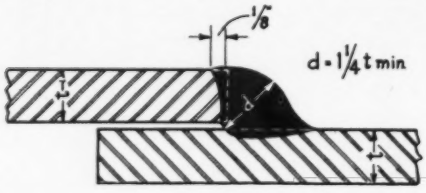


Fig. 5

Pipe beveled for welding may be so purchased, or it may be beveled in the field.

FLANGES, BENDS AND OTHER FITTINGS

11. All flanges to be attached by welding shall be made of forged steel complying with the material requirements of the American Standards Association specifications B 16e—1927, and unless otherwise specifically required, shall be the standard welding neck flange of the Heating and Piping Contractors National Association. Reducers, branch connections, and other fittings including pipe bends and turns whether manufactured or fabricated from pipe by cutting and welding, shall be made from similar pipe material or seamless tubing complying with requirements of paragraph 10.

WELDING ROD

12. Low carbon welding rod shall have a chemical composition as follows:*

"Carbon .....not over 0.06 of one per cent
Manganese .....not over 0.15 of one per cent
Phosphorus .....not over 0.04 of one per cent
Sulphur .....not over 0.04 of one per cent
Silicon .....not over 0.08 of one per cent"

Welding rods shall be of good weldability. Low carbon steel welding rods shall develop tensile strength not less than 45,000 lb. per sq. in. cross section of the metal deposited in the weld. Special steel welding rods giving tensile strength greater than 45,000 lbs. may be used if desired.

Note: For standard pipe and extra heavy pipe up to 6 in., 3/16 in. rod is recommended. For extra heavy pipe above 6 in., ¼ in. rod is recommended.

APPARATUS

13. Apparatus manufactured by any reputable concern may be used. The apparatus shall be kept in first-class working condition at all times.

Design of Welded Joints

DESIGN—GENERAL SCOPE

14. It is the general purpose of these specifications to standardize and control only the form, design, procedure, and extent of the weld metal deposition. The diversity of construction and design which have been used and may be developed for connecting pipe lengths, branches, flanges and fittings would make it inadvisable to needlessly limit or regulate the general design of these parts, but unless otherwise specified, the various fittings and units of construction listed herein as standards shall be followed as representing the present best known and reliable practices.

NOMENCLATURE OF JOINTS

15. The types of welded joints and units of construction used in piping system covered by these specifications are:

A. Single Vee Type Joints—See Fig. 4.
B. Fillet Welds—See Fig. 5.
C. Tee or Angle Joints—See Fig. 6.
D. Flanges—See Figs. 7, 8.
E. Bends—See Figs. 9, 10, 11, 12.
F. Reducers—See Figs. 13, 14.
G. Pipe Caps—See Fig. 15.

LINE JOINTS

16. All line joints shall be the single vee type. For standard pipe in all sizes, or for pipe having wall thickness over 3/16 in., line joints shall be made with single vee type weld (Fig. 4), for which the pipe shall be purchased mill beveled or machine beveled to 45 degrees to within 1/16 in. (± 1/32 in.) of the inside wall.

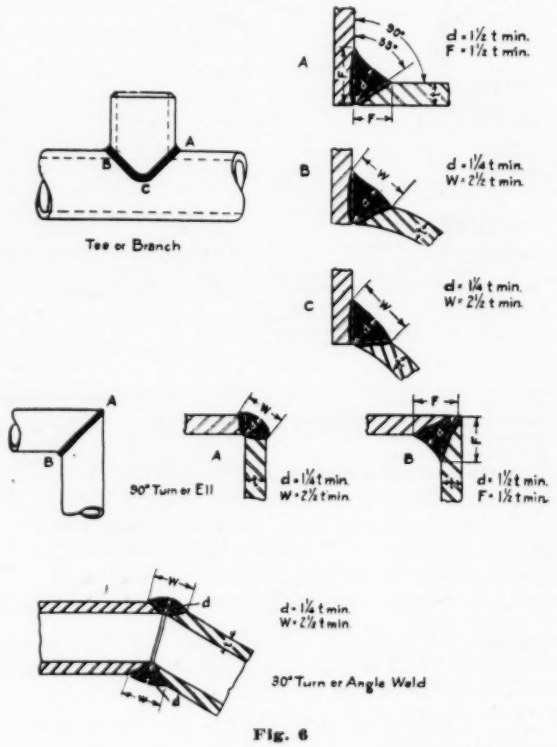


Fig. 6

Odd lengths and tie-in joints should be cut and beveled, and such cuts shall be regular and the finished bevel shall conform closely to the specification. Before welding, all surfaces cut by the gas cutting torch shall be properly cleaned of all oxide by grinding, filing or other suitable means.

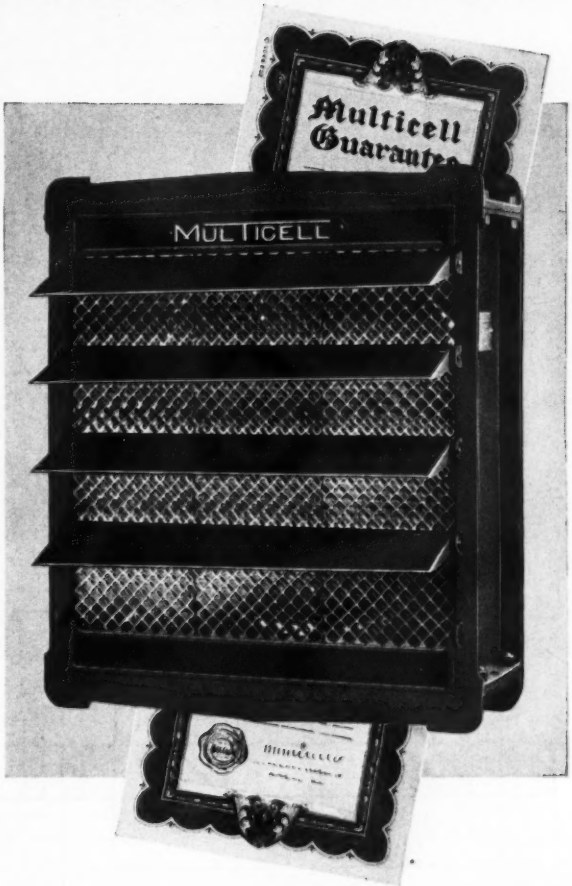
SINGLE VEE TYPE JOINT SPACING

17. The abutting pipe ends for line joints shall be separated the following minimum distance before tacking:

* Taken from American Welding Society, Bulletin No. 2, G-No. 1A, and E-No. 1A.

HOW AN OLD PROCESS CREATED A NEW HEATING SURFACE

AND MADE POSSIBLE THE STRONGEST GUARANTEE EVER PLACED BEHIND A UNIT HEATER



THE process of copper plating is old. It remained for Multicell engineers to apply that process in a new and amazingly successful way. Multicell heating surface is the result. So dramatic are the improvements, that Multicell Unit Heaters are guaranteed against the possibility of leakage. The reasons for this guarantee are as follows:

Multicell sections absorb expansion and contraction within themselves due to their accordion-like pattern.

Multicell surface eliminates the necessity for a multiplicity of soldered joints.

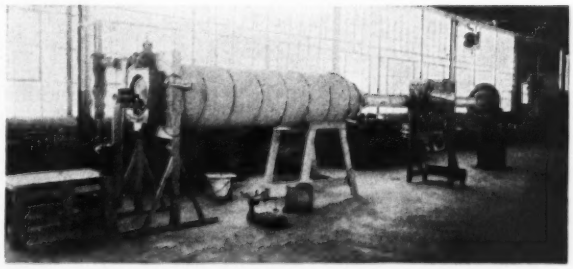
Multicell surface eliminates the necessity for diaphram action in headers. Multicell headers are cast integral with the cast iron frame which, incidentally, takes all piping strains.

To the user, the Multicell guarantee gives assurance of long uninterrupted service.

To the trade, the Multicell guarantee means that the elimination of service costs makes Multicell a satisfactory and profitable line to handle. Once installed, they stay installed.

Buy no unit heater until you investigate the guaranteed performance of Multicell. A post card will bring you a complete description of the improved features which make it possible for us to say, "Only a Multicell can do what a Multicell can do."

MULTICELL RADIATOR CORPORATION
LOCKPORT, N. Y.



Showing how Multicell Unit heaters are tested in accordance with the A. S. H. and V. E. code. DEMAND GUARANTEED CODE RATINGS

MULTICELL UNIT HEATERS

Nominal Diameter of pipe Inches	Spacing	
	Standard pipe Inches	Extra heavy pipe Inches
½"	1/16"	1/16"
¾"	1/16"	1/16"
1"	1/16"	1/16"
1¼"	1/16"	1/8"
1½"	1/16"	1/8"
2"	1/16"	3/16"
2½"	1/8"	3/16"
3"	1/8"	3/16"
4"	1/8"	3/16"
5"	1/8"	3/16"
6"	3/16"	1/4"
8"	3/16"	1/4"
10"	3/16"	1/4"
12"	3/16"	1/4"
14"	3/16"	1/4"
16"	3/16"	1/4"

WELD DIMENSIONS

18. The single vee type weld shall have the following minimum dimensions:

Width: 2½ times pipe wall thickness.

Reinforcement: Approximately 1/16 in. above outside pipe wall fo pipe wall thickness up to ⅜ in., and approximately ⅛ in. for greater wall thickness.

Penetration: Fusion shall extend down and into unbeveled edges or shoulder of pipe ends, as illustrated in Fig. 4.

Shape: There shall be no valley either at the edge or at the center of the joint and the weld shall be built up so that the weld metal will present a gradual increase in thickness from the surface of the pipe to the center of the weld.

Note: Girth seams of double length line pipe machine welded at the mill are not required to conform to the foregoing specification for reinforcement.

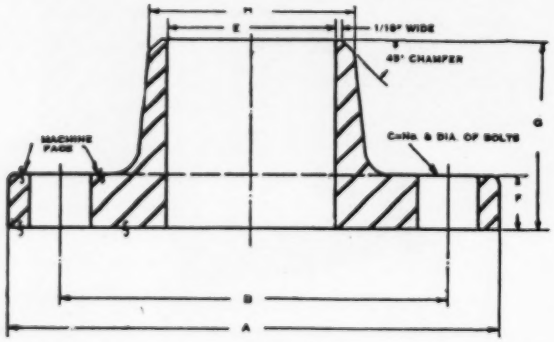


Fig. 7

FILLET WELD DIMENSIONS

19. Fillet welds, where required for the fabrication of pipe hangers, etc. (Fig. 5) shall have the following minimum dimensions:

Throat Thickness: 1¼ the minimum pipe wall or plate thickness.

Fusion Width: Fusion zone of junction between weld metal and base metal shall be equal in length in each direction to 1½ times the minimum pipe wall or plate thickness.

Shape: The contour of the weld shall be such that the hypotenuse of right angle triangle formed at the junction of the parts welded will give required throat dimension or convex outward and shall be symmetrical without valleys or low spots.

TEE OR ANGLE JOINTS

20. Tee or angle joint welds used in welding branch connections and fabricated bends shall be made so as to comply with the following requirements:

Beveling: The edges of the pipe shall be beveled and prepared so as to give well-matched intersections and permit fusion and deposition of weld metal to the bottom of the intersecting surfaces.

Spacing: The abutting edges of the intersecting parts shall be separated a sufficient distance to provide for contraction during welding and specified deposition

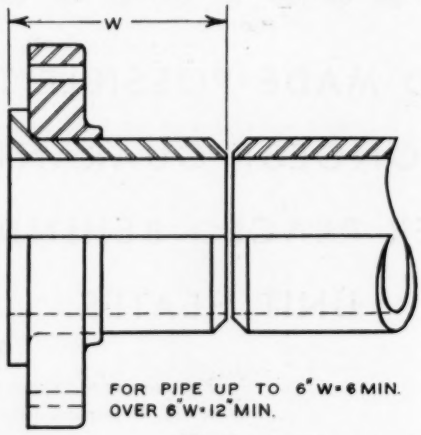


Fig. 8

of weld metal. A minimum spacing of 1/16 in. to ⅛ in. will be provided for tee connections and angle turns.

Weld Dimensions: Where the angle formed between the intersecting parts is 90 degrees or less, the throat or weld depth of the fillet weld shall be 1¼ times the minimum pipe wall thickness. The fusion length between weld metal and base metal shall be equal in length in each direction to 1½ times the minimum pipe wall.

Where the angle formed between the intersecting parts is 90 degrees or more, the throat or wall thickness shall be 1¼ times the minimum pipe wall thickness. The width of the weld shall be a minimum of 2½ times the minimum pipe wall thickness.

Weld Shape: The weld shape shall be symmetrical to the intersecting or welded parts and shall have no valley or low spots to weaken the weld or base metal. Fig. 6 illustrates the dimensions and shape of tee and angle joint welds for various angles of intersection of welded parts.

FLANGES

21. Flanges, wherever possible, shall be the Standard Welding Neck Flange of the Heating and Piping Contractors National Association (see Fig. 7). If it is desired to use lap joint flanges (see Fig. 8) or other special flanges suitable for welding under these specifications, their use shall be permitted by mutual agreement between the owner and/or his duly authorized representative and the contractor.

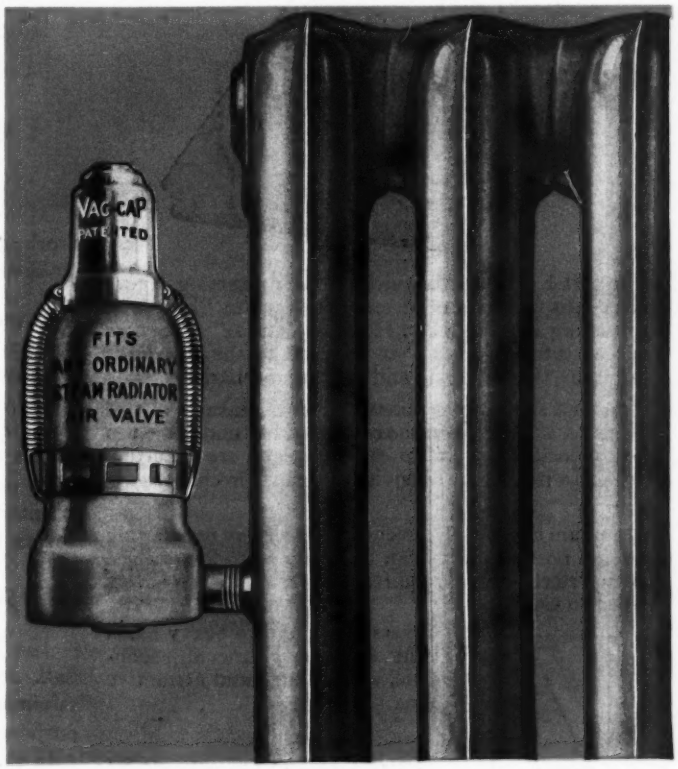
(To be Continued)

◆

Dixon, Ill.—Patrick H. Fane, plumbing contractor, has disposed of his business to the firm of Klein and Heckman, and is now associated with the latter firm.

HERE'S NEWS! The Benefits of a Vacuum System...at 70c per Radiator!

Every plumbing and heating contractor who has an eye to quick profits on retail sales should read this! Here is a remarkable specialty—the "Vac-Cap"—which slips on right over any ordinary steam radiator air valve and transforms it into a vacuum action valve. Everyone who owns an air-valve-equipped heating system is a prospect! . . . and best of all, this is CASH BUSINESS.



A PROVEN PRODUCT

"Vac-Caps" are no experiment. They have been in use for 3 years, with notable success. Professor James Holt, of the Massachusetts Institute of Technology, after thoroughly testing "Vac-Caps," writes: "The purpose of the 'Vac-Cap' valve is to transform an ordinary steam radiator air valve into a vacuum action valve, and from the tests the writer has seen, the 'Vac-Cap' valve produces this result."

This unique specialty was designed by one of our heating engineers and is produced in our plant—long and favorably known in the engineering field.

Fit Any Valve

"Vac-Caps" fit any ordinary air valve, make a tight joint and are equipped with a self-cleaning disc check which makes them positive in action.

Open the Door to Other Sales

"Vac-Caps" give you an opportunity to supply hundreds of people who otherwise could not afford vacuum action systems. This means good will for you, and leads the way to more profitable contacts with your trade.

Nationally Advertised

This sales-building specialty is backed by an advertising and sales promotion program that will reach millions, the country over, this fall and winter—including an extensive series of radio broadcasts and advertising in THE SATURDAY EVENING POST and in BETTER HOMES AND GARDENS.

Quick Turnover—Ready Profits

"Vac-Caps" are packed in colorful, smart-looking display cartons, containing 3 dozen "Vac-Caps" in individual boxes. The average sale is 8—bringing you a profit of $18.40 from every 10 customers! And the news of "Vac-Caps" efficiency will travel fast—constantly attracting new customers to your store.

Sold Only Through the Trade

"Vac-Caps" are sold by reputable plumbing and heating contractors and distributed through recognized wholesalers. You can count on our full co-operation in keeping "Vac-Caps" selling—AT A PROFIT.

Send the Coupon

Use the coupon now. Get the whole "Vac-Cap" story, including sales promotion plans and discounts. No obligation.

B. F. PERKINS & SON, Inc.
"VAC-CAP" DIVISION
HOLYOKE
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B. F. Perkins & Son, Inc., Dept. VC
Holyoke, Mass.
Send full details on "Vac-Caps." Our jobber is:

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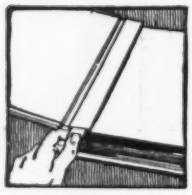
THE HANDY SPEEDLOK
Domestic Engineering Catalog Binder

Especially designed for the standardized catalog page adopted by the plumbing and heating industries

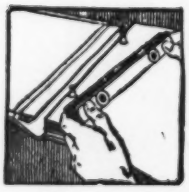
The SPEEDLOK is a quick operating catalog binder designed to fit reprints of catalog pages in "Domestic Engineering Plumbing and Heating Catalog" as well as all other catalog pages that conform to the standards adopted by the plumbing and heating industries.

Easy and speedy operation are special features of this binder. A slight pull on the concealed bar under the top cover unlocks mechanism when sheets are inserted. Equipped with bar for removing sheets when changes are made.

Minimum capacity 1¼ inches. By simply unscrewing extension posts capacity can be extended to 2¼ inches. Works perfectly for all requirements—either a few sheets or filled to capacity.



Covers are bound in heavy black Levant Grained Fabricoid, semi-flexible, very durable and attractive looking.



To unlock Binder—Pull out slide bar in top wing. Top cover will immediately fall back.

To lock Binder—bring top wing back over the posts—be sure posts fit in the holes in the top wing—then push in slide bar.

Separate the sheets where desired and slip sheets off the posts. Take out sheets or put in new ones as desired. These three moves take but a few seconds. Each operation is a natural one.

To increase or to decrease the capacity of the binder is a simple operation. The two posts are so constructed that they can be easily raised or lowered to meet the height requirements. Binder posts can be extended from 1¼ inches to 2¼ inches.

Price of binder—$3.00. Prices on quantities on application.

For Plumbing and Heating Contractors—

Many master plumbers and steamfitters assemble working catalogs from standardized catalog sheets filed in binders.

Domestic Engineering is in position to furnish without charge, upon request, loose sheets—which are reprints from catalog pages appearing in "Domestic Engineering Plumbing and Heating Catalog"— of several hundred manufacturers. They are standard catalog page size — 10⅝ x 8½ inches — are printed on a good grade of light paper and punched according to the standard adopted by the plumbing and heating industries. These sheets fit the SPEEDLOK binder.

For Jobbers' Salesmen—

The loose-leaf system reduces to the minimum the bulk and weight of catalog material required by the salesman. Only matter actually required for selling purposes need be carried in the binder. It does away with the necessity of carrying entire catalogs, booklets and circulars of various sizes and shapes.

Salesmen using the loose-leaf system have a great advantage over men not using this equipment—to say nothing of the added convenience, time and labor-saving features.

With a modernly equipped loose-leaf binder, the salesman can present his products in a more comprehensive manner than it is possible to accomplish by the old methods. Having all his material up to date in compact form and easily available, he can show latest specifications, answer questions or quote prices more readily.

When orders for binders are accompanied by requests for catalog reprints the binders will be equipped with the sheets desired and shipped complete.

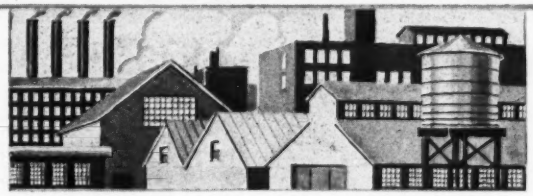
Write for full details regarding loose sheets and binders.

DOMESTIC ENGINEERING

1900 Prairie Avenue ***(Catalog Department)*** **Chicago, Illinois**

SUPPLY NEWS

AMONG MANUFACTURERS, WHOLESALERS AND SALESMEN



Albany Wholesaler Arranges Color Combinations

Interstate Plumbing Supply Co., 731 Broadway, Albany, N. Y., is making changes in its showroom layout to provide a better display of colored fixtures. As a result of the improvement the company will be able to show customers complete color combinations as an aid in selecting colored ware.

◆

Standard Sanitary Mfg. Co. Advances Five Officials

The Standard Sanitary Mfg. Co., Pittsburgh, Pa., has advanced the following officials to vice presidencies of the company: A. M. Maddock, vice president, sales manager, eastern division; H. F. Beglen, vice president, sales manager, central division; F. A. Kales, vice president, sales manager, western division; R. L. Ottke, vice president, sales manager, brass division; and C. B. Nash, vice president, director of publicity.

Mr. Maddock, with headquarters in the east, will supervise all Standard sales office activities in eastern United States. Mr. Maddock has been with the company only a year, having been, at the time of the Thomas Maddock's Sons Company's inclusion in the American Radiator and Standard Sanitary Corp., in April, 1929, president of the former company.

Mr. Beglen, Mr. Nash and Mr. Ottke have added their efforts to the growth of the company for many years, while Mr. Kales has been with the company since 1925, when the Pacific Sanitary Mfg. Co. became part of the Standard Sanitary Mfg. Co.

◆

Chase Brass & Copper Co. Open Warehouse in Pittsburgh

Chase Brass & Copper Co., Inc., Waterbury, Conn., opened a new warehouse at 855 North avenue, West, Pittsburgh, Pa., on July 14. Heretofore the company has had only a sales office in Pittsburgh. The new building was designed especially for warehouse purposes, the storerooms and stockrooms being spacious and well equipped. This is the nineteenth warehouse of the company.

◆

N. P. S. A. Votes on Increase in Directors

The board of directors of the National Pipe and Supplies Association, while meeting recently at Pinehurst, N. C., voted to increase the number of members on the executive committee of the association from eight to twelve, thus enabling the association to carry out its plan of dividing the United States into twelve zones, with at least one director to represent each zone.

In order to do this, however, it is necessary to make a

F. A. Kales

A. M. Maddock

C. B. Nash

H. F. Beglen

R. L. Ottke

change in the organization's constitution, and each member has been asked to vote on the proposition.

Below are the suggested changes in the constitution:

ARTICLE IV

As at present: "Section A—The Officers of this Association shall consist of a President, two Vice Presidents, a Secretary and a Treasurer and an Executive Committee of eight, who shall serve without compensation, except the Secretary, the amount of whose compensation shall be fixed by the Executive Committee. The President and two Vice-Presidents shall be ex-officio members of the Executive Committee."

Suggested change: Third line, change to "twelve," making clause read "and an Executive Committee of *twelve*."

As at present: "Section D—The Executive Committee shall be elected in classes, two in each class."

Suggested change: "The Executive Committee shall be elected in classes, *four* in each class."

◆

Theodore Ahrens Recovering from Injury

Theodore Ahrens, president of American Radiator and Standard Sanitary Corp., New York City, is recovering from a recent accident in which he sprained his back. Mr. Ahrens was confined to his quarters in the Hotel Gotham, New York City, under a doctor's care, but returned to his office on Monday, July 21.

◆

Is Building Plant Addition

Ross Valve Mfg. Co. of 6 Oakwood avenue, Troy, New York, is building an addition to its plant to take care of expansion and also to provide more office room.

◆

Boston Branch of Crane Co. Holds Picnic

Pemberton Inn, Pemberton, Mass., was the scene of a picnic on July 3, given for Crane Co., employes of the Boston branch in observance of the 75th anniversary of the founding of the company.

The trip to Pemberton was made by boat, and a large part of the day was devoted to athletic events. The baseball game was won by the married men who bested a team composed of single men. Tennis match doubles were won by Miss M. E. Holder and Stanley C. Brown; the ball throwing contest for ladies was won by Mrs. E. Galvin, and the potato race was won by James O'Leary. There were many other contests for which fine prizes were given to winning contestants. A telegram was received from Mr. and Mrs. R. T. Crane, Jr., who were attending the main celebration being held by the company in Chicago.

The committee on arrangements was composed of Edward F. Dunn, chairman; S. F. Bell, W. R. Ripley, H. M. Bates, D. J. Murphy, J. Ferris, Miss B. Swanson, Miss M. E. Holder, Miss B. Mariner, Miss V. Black, Miss B. Hebb, Miss E. Rogers, Miss I. Westhoff, J. J. Houlihan and M. Cotter.

◆

Tube-Turns, Inc., Announces Plant Expansion

Tube-Turns, Inc., Louisville, Ky., has announced additions to its plant and equipment which are expected to increase production by 60 per cent. Construction of the addition to the factory was completed in the early part of July while the new equipment will be ready for operation by August 1, according to Walter H. Girdler, president of the Girdler Corp., which operates the Tube-Turns company.

The company has extended its markets to Hawaii, Canada and Central and South America, according to E. H. Courtenay, vice president and director of sales for the Girdler Corp.

◆

Is Now George Foster Sales Co., Inc.

The George Foster Sales Co., Inc., has succeeded to the business of the W. A. Buerkle Sales Co., Inc., of Brooklyn, N. Y., manufacturers' agents. Until May 1, 1930, Mr. Foster was treasurer of the W. A. Buerkle Sales Co., Inc. On this date W. A. Buerkle retired and a new organization known as the George Foster Sales Co., Inc., was incorporated.

◆

Cumbustioneer, Inc., Holds Dealer Convention

Combustioneer, Inc., Goshen, Ind., manufacturers of automatic stokers, held its dealers' convention at Lake Wawasee, Ind., June 27 and 28. At the conclusion of the business session the dealers were taken on an inspection trip through the company's plant. Among the dealers present were a few heating contractors.

◆

Wholesaler Gives Dinner at Boston in Honor of Washington, D. C., Delegation

On June 24, James A. Messer, president of James A. Messer Co., Inc., Washington, D. C., gave a dinner at the Hotel Statler, Boston, Mass., to the delegates and their wives from his city attending the forty-eighth convention of the National Association of Master Plumbers. Between courses, brief remarks were heard from

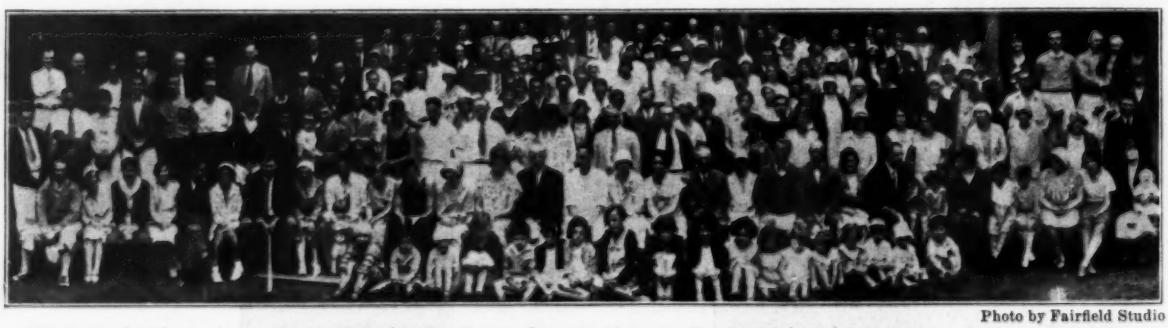


Photo by Fairfield Studio

Photograph taken at the picnic given by the Boston branch of Crane Co., in celebration of the firm's 75th anniversary

those present. Mrs. Samuel Tapp presented Mrs. Messer with a handsome beaded bag from the delegation. Mrs. F. W. Quinter, president of the District of Columbia Women's Auxiliary, was also the recipient of a memento from the same source through Mrs. Tapp.

◆

Death of George Maynard

George Maynard, of the F. W. Webb Mfg. Co., Boston, Mass., died recently in that city. He was a brother of Joseph Maynard, president of the Boston Brass Co., Boston, and president of the Eastern Supply Association.

◆

Western New York Trades Golf Association Holds Second Meeting

The second meeting of the Western New York Trades Golf Association was held recently at the Meadowbrook Country club. H. B. Couch won the guest prize of six golf balls. The following received six balls for having a net score in their respective foursomes closest to 74, which was the number drawn in a kickers' handicap: Elmer Carlson, W. E. Voisinet, R. V. Benton and W. E. Spencer. A. A. Ahlff and Park Hedley were tied and received three balls each. The duffer's cup was won by John Nathan.

The day's scores were as follows:

	G.	H.	N.		G.	H.	N.
A. A. Ahlff	109	27	82	A. K. Tinker	125	30	95
Park Hedley	132	50	82	Elmer Carlson	114	35	79
H. B. Couch	126	35	91	L. N. Castin	110	30	80
E. P. Hannig	116	35	81	R. H. Partenfelder	125	35	90
W. E. Voisinet	85	10	75	T. Cruikshank	133	50	83
H. B. Roarke	122	40	82	R. W. Snowberger	119	40	79
J. Bonner	113	25	88	R. V. Benton	109	35	74
H. S. Frank	115	40	75	John Nathan	135	50	85
S. J. Barnett	122	35	87	W. E. Spencer	99	25	74
S. E. Shea	107	35	72	P. A. Weager	115	24	91
Ross Farnum	137	35	102				
Walter Johnson	93	28	65				
L. R. Schnelling	126	38	88				

◆

Delaware Valley Trade Golfers Play Trenton Club

The Trenton Country club, Trenton, N. J., was the scene of the June meet of the Delaware Valley Trade Golf Association, of Philadelphia, Pa., on Friday, June 20. H. S. Maddock, A. M. Maddock and P. Faherty were the hosts, and everyone enjoyed their hospitality.

In the morning round medal play, W. B. Tomlinson, with a net 61, took first honors and six golf balls. Second prize of four balls went to H. J. Carr, who shot a net 65. Third and fourth prizes went to J. Fraser and T. Liggett, Jr., respectively.

The afternoon round of best ball found six prizes with first prize of six balls going to Savill and Weber. Woods and Kuschan took second prize of five balls each. Four balls and third prize went to Brown and Wilfong. Newell and Fretz each received three balls for fourth place. Wanger and Squires and Fraser and Wright each received two balls for placing fifth and sixth, respectively.

E. W. Rudd, William Kelly, Robert Bullman, H. M. Bouscher and Alfred Day, Jr., received guest prizes of one ball each.

The next tournament will be held at the Concord Country club, Concordville, Del.

The scores follow:

Top row: Charles Snodgrass, Wilson Tyler, John Squires and C. L. Weber. Bottom row: H. Newel, R. Groff, R. Fretz and H. S. Maddock

MORNING ROUND

	G.	H.	N.		G.	H.	N.
C. L. Weber	90	27	63	T. Liggett, Jr.	79	12	67
Phil Faherty	108	28	80	R. Fretz	100	Guest	
R. D. Knight	106	30	76	H. J. Carr	90	25	65
Robert Savill	99	24	75	W. B. Tomlinson	87	26	61
J. P. Woods	104	Guest		L. W. Brown	No card		
Art Kusehan	105	Guest		E. W. Rudd	No card		
Jos. Fraser	95	30	65	C. P. Wilfong	No card		
J. F. Wright	95	Guest		A. A. Tomlinson	No card		
W. G. Tyler	113	35	78	A. M. Maddock	No card		
R. Groff	110	35	75	Wm. Kelly	107	Guest	
H. Newell	108	Guest					

AFTERNOON ROUND

Best Ball

	G.	H.	N.		G.	H.	N.
Robt. Savill	86	24	62	C. Snodgrass			
C. L. Weber				A. A. Tomlinson	101	30	71
C. W. Wanger	92	25	67	Wm. Kelly			
Jack Squires				J. T. Wright	87	20	67
E. W. Rudd	99	30	69	Jas. Fraser			
J. Bitzer				J. Woods	90	25	65
L. W. Brown	101	35	66	Art. Kuschan			
C. Wilfong				A. M. Maddock	92	23	69
H. S. Maddock	86	18	68	W. G. Tyler			
H. J. Carr				H. M. Boucher	No card		
Phil Faherty	100	25	75	Fred Allen	No card		
R. D. Knight				John Ward	No card		
T. Liggett, Jr.	81	12	69	John Radice	No card		
R. Groff				Robt. Bullman	No card		
H. Newell	97	30	67	Frank Newton	100	30	70
R. Fretz				Alfred Day, Jr.			
Wm. Tomlinson	90	20	70				

◆

John M. Callen Dies

John M. Callen, for a number of years vice president and a director of the Reading Iron Co., and The Thomas Iron Co., Reading, Pa., died at the Reading hospital on July 2. Mr. Callen was in his 74th year, his death being indirectly due to an operation for appendicitis two weeks prior.

In his early days, Mr. Callen was employed by the Pottsville Iron and Steel Company, and on July 1, 1899, he entered the employ of the Reading Iron Company. He was successively auditor, purchasing agent, assistant general manager and vice president.

He was a member of the American Iron and Steel Institute; the Eastern Bar Iron and Eastern Pig Iron Associations; as well as a member of the Wyomissing Club and of St. Peter's Catholic church of Reading. He was buried at Pottsville, Pa.

◆

N. J. Trades Golf Association Holds Third Meet

The New Jersey Plumbing and Heating Trades Golf Association held the third meet of the season

at the Canoebrook Golf club, Summit, N. J., June 19, with James Weaver acting the perfect host. Despite the difficulties of both the north and south courses the players were compensated by the weather man with an ideal day for golf. In the "kickers" handicap in the morning, which was played on the north course, E. Fiigon won four balls, first prize; J. Joyce three balls, second prize; H. Baumgartner, two balls, third prize; G. Hamill, two balls, fourth prize; and R. Ryan, one ball, fifth prize.

MORNING ROUND

	G.	H.	N.		G.	H.	N.
S. F. Wilson	57	18	39	E. B. Moore	59	14	45
H. C. Green	46	16	30	H. S. Officer	65	30	35
E. M. Robinson	52	13	39	H. E. Baumgartner	50	12	38
L. DelTufo	48	12	36	F. Engelberger	47	14	33
G. Hamill	47	12	35	J. O'Toole	Guest		
D. Sampson	60	18	42	R. Ryan	56	16	40
J. S. Weaver	No card			N. J. Convery	63	25	38
J. Sell	No card			J. E. Joyce	50	16	34
L. J. Plume	Guest			F. R. Moody	57	17	40
E. Fiigon	59	20	39				

In the afternoon round which was played on the south course, the following were the prize winners:

CLASS A

	Place	N.	Prize		Place	N.	Prize
L. DelTufo	1st	80	6 balls	J. Joyce	5th	82	1 ball
H. Baumgartner	2nd	81	4 balls	F. Engelberger	6th	83	1 ball
F. Moody	3rd	82	3 balls	J. Weaver	7th	83	1 ball
W. Clift	4th	82	2 balls				

CLASS B

J. Sell	1st	79	3 balls	H. Officer	4th	98	3 balls
E. Hamilton	2nd	79	3 balls	B. Raphiel	5th	99	2 balls
S. Blackwood	3rd	90	4 balls				

AFTERNOON ROUND

CLASS A

	G.	H.	N.		G.	H.	N.
F. Moody	102	20	82	*J. O'Toole	148	..	..
L. DelTufo	96	16	80	N. J. Convery	137	36	101
*H. Green	105	..	..	J. E. Joyce	104	22	82
G. Hamill	108	20	88	F. Engelberger	107	24	83
E. Robinson	112	24	88	E. B. Moore	No card		
W. Clift	101	19	82	H. Baumgartner	104	23	81
*R. Ryan	112	..	..	J. Weaver	98	15	83

CLASS B

J. Buday	148	36	112	E. Fiigon	115	34	81
E. Hamilton	110	31	79	H. Rumler	119	36	83
B. Raphiel	135	36	99	J. Sell	115	36	79
S. Blackwood	126	36	90	*L. Plume	122		
H. Officer	134	36	98	*D. Sampson	121		

* Guest.

Business Personals

WILLIAM A. KEENEY, president of the Keeney Mfg. Co., Newington, Conn., is enjoying a two months' trip abroad. Mr. Keeney plans on visiting Germany, France and Switzerland, returning to this country about August 1.

JAMES R. WHITE has been elected vice president and director of sales of Jenkins Bros., New York City. This action was taken at a recent meeting of the board of directors of the company. Mr. White has been connected with Jenkins Bros. for several years as secretary, prior to which he was manager of Rickard & Co., Inc., that city.

James R. White

R. J. WELSH, of Atlanta, Ga., has been appointed representative for the Chicago Pump Co., Chicago. He will make his headquarters at 503 Healy street, Atlanta.

JOHN A. CONNORS has been appointed manager of sales of Essex Foundry, Newark, N. J. Mr. Connors succeeds the late Joseph Chalke.

ARTHUR F. ERICSON has been appointed manager of the new San Francisco, Calif., office of the Minneapolis-Honeywell Regulator Co., Minneapolis, Minn. Mr. Ericson, as head of his own company, has distributed Minneapolis-Honeywell products on the Pacific coast for the past five years. He invented the first solenoid operated gas valve and his patents are still the basis for construction of certain of the Minneapolis-Honeywell company's products.

C. G. WOOLEY has been appointed district manager on the north side of Chicago by the Modern Coal Burner Co., Chicago. RAY GLASPELL, formerly with the Iron Fireman Mfg. Co., Portland, Ore., and more recently with the Fire King Mfg. Co., Indianapolis, Ind., has been appointed district manager on the south side of Chicago, and J. M. STAUB has been given a north side district managership in the same city for the Modern Coal Burner Co. Mr. Staub was formerly with Combustioneer, Inc., Chicago.

P. J. BOLSTAD, formerly with the Seattle, Wash., office of the Standard Sanitary Manufacturing Company, is now in charge of the company's display room in Portland, Ore., succeeding L. O. Hansen.

ALLAN HOOVER, the younger son of President Hoover, who graduated from Harvard University in June, has become associated with the American Radiator Co., New York City. Having expressed his intention of thoroughly familiarizing himself with the manufacture of heating products, Mr. Hoover accepted a position in the Bayonne plant of the company. During the two weeks the plant was closed down for vacation the President's son made a study of operating details in various offices of the company. He returned to his duties in the Bayonne plant of the company on July 21.

Allan Hoover

A. E. HAWN, treasurer of Ravena Iron Co., Ravena, N. Y., is recovering from a serious illness which has confined him to his home for some time.

Western Trade Beats Milwaukee: Carl Olsen Wins Association Cup Permanently

On July 10, at Glen Flora Country Club, Waukegan, Ill., the Western Trade Golf Association of Chicago extended its string of victories over other trade golf associations by winning a match with members of the Milwaukee Plumbing and Heating Club by a score of 9 to 0. A turn-out of fifty members and guests provided a nice crowd to enjoy the popular Glen Flora course.

The rule that net scores below par automatically revert to par, and ties are decided in favor of low handicap, was worked overtime at this tournament. The members were apparently at top form, for fifteen of the fifty smashed par with their net scores, and many who would win prizes as a rule with such scores were out of the money because someone with a lower handicap was also under par.

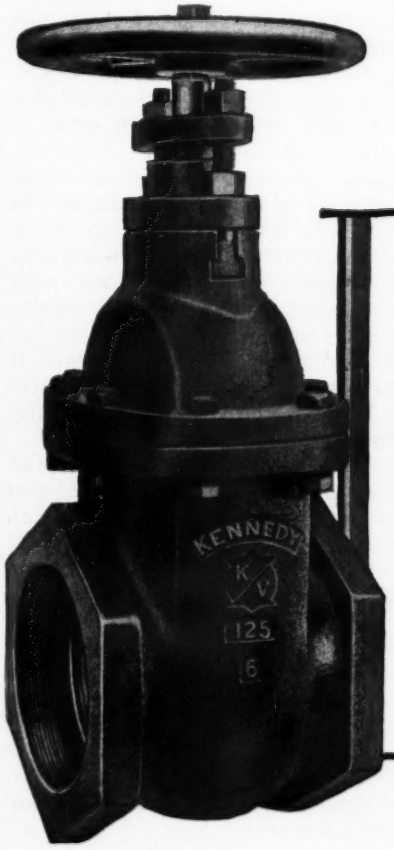
The outstanding game of the day was turned in by C. F. Olsen, who shot a 78 gross, with a 7 handicap. This score gave Olsen his third leg on the association cup, meaning that it is now his permanent possession. It also gave him first prize in classes A and B.

Harry M. Hart was first in class C; F. H. Gaylord topped the class D players. J. H. Milliken, popular handicapper, had the low round in the morning for the prize given for this event. E. F. Smith won blind bogey. J. J. Philippi shot low gross among the guests. John Krez took the duffer's cup.

Porter West, W. M. Byrd and M. G. Henderson took second money in their respective classes in the afternoon. A special prize for the visiting Milwaukeeans was presented to N. H. Dengel.

Announcement was made that the date of the match with the Michigan Trade Golf Association has been changed to August 6, and the date of the local tournament for August to the 26th.

	G.	H.	N.
L. J. Pitcher	88	12	76
E. C. O'Connor	96	17	79
W. J. Bastian (Guest)	100		
W. A. Taylor	91	24	67
A. O. May	102	21	81
R. M. Stackhouse	96	26	70
John J. Krez	122	30	92
R. M. Getschow	100	25	75
E. E. Ellis	95	20	75
Joe Comer	Withdrew		
J. H. Milliken	88	11	77
C. W. Johnson	Withdrew		
Cody Davis (Guest)	92		
H. M. Hart	90	19	71
W. M. Byrd	88	21	67
H. G. Thomas	95	21	74
J. H. O'Brien	94	19	75
C. F. Olsen	78	7	71
F. H. Gaylord	94	25	69
R. E. Moore	88	22	66
W. T. Walters	98	27	71
J. C. Matchett	101	30	71
E. Ashby	108	28	80
G. A. Hagstrom (Guest)	94		
E. C. Welch	87	14	73
C. E. Price	99	25	74
A. P. Campbell	87	12	75
P. V. Hyland, Sr.	99	29	70
Macy Good	100	30	70
T. E. Fairbanks (Guest)	104		
E. F. Smith	94	14	80
George Dickerson	98	25	73
T. H. Callahan	89	26	63
M. G. Henderson	95	25	70
R. Doherty	83	16	67
J. J. O'Shea	102	22	80
Harry Harden (Guest)	102		
Rex Wade (Guest)	116		
A. Boettcher (Milwaukee)	115		
Claude Carey (Guest)	99		
W. D. Graham (Guest)	106		
G. G. Turner	122	30	92
T. T. Arden (Milwaukee)	132		
J. A. Corboy	99	24	75
Porter West	82	14	68
J. M. Grace	111	30	81
N. H. Dengel (Milwaukee)	122		
J. J. Phillippi (Guest)	90		
Wm. Brayton (Guest)	102		
R. J. Murphy (Guest)	104		



KENNEDY

VALVES-PIPE FITTINGS-FIRE HYDRANTS

TIGHT closure against vacuum or high pressure, instant release at the first motion of the hand-wheel, effortless opening or closing—these important operating features are all characteristic of Kennedy Valves. And equally important, Kennedy Valves are thoroughly reliable at all times, whether infrequently operated or opened and closed several times a day. For over half a century and in hundreds of thousands of installations, engineers have been learning the many advantages of standardizing on Kennedy Valves.

The Kennedy Valve Mfg. Co., Elmira, N. Y.

Branches in Principal Cities

Write for the K V *Kennedy Catalog*

You Can Increase Sales Without

I NOTE from the program this is the twenty-first annual convention. When a man reaches the age of twenty-one he is permitted to vote, and his first vote is a real event in his life. This doubtless applies equally to your association, as 1930 (the year the association became of age) will unquestionably go down in history as a real eventful one.

During 1930 the jobbing trade will have given more real thought to business and its ailments and the necessary remedies for those ailments than during the past five or ten years. I believe that during 1930 inventories of all classes of merchandise carried by wholesalers, particularly plumbers' brass goods, will be materially reduced. More dead, slow-moving and inactive material will be cleaned up than ever before. This is a good thing. The average salesman, too, is working harder and getting less than at any time during the past five or six years. This also is a good thing, for I believe many of them have gotten out of the habit.

I am not going to bother you with a lot of statistics about how many automobiles there are compared with the number of bath tubs, for only recently I read in one of the daily papers a very humorous short story which explained quite clearly why there were fewer bath tubs than automobiles, among other things, mentioning that you couldn't see the country in a bath tub or take your best girl for a ride in one, it just wasn't being done.

> "The real serious thinking which is being done by everyone in the trade will unquestionably result in improved merchandising methods. Many good resolutions will be made and lived up to, foremost among which will be the resolution to keep stocks clear of dead and inactive dollars and cents."—R. L. Ottke.

I believe you are more interested in some actual facts relative to your own business which may, to some extent, explain why many wholesalers are doing little more than scratching the surface when it comes to selling brass products. One very prominent wholesaler sent to his source of supply for brass goods eleven separate orders for the same item within nine days. Another wholesaler, quite by accident, discovered that one of his stock men gave a customer eight double sink faucets whereas his order only specified six. This wholesaler investigated further and found the same boy had given away to one particular customer something like three thousand dollars worth of material which was never billed. Quite recently a wholesaler showed me through his building and I counted brass stocks in nine different locations in that four-story building.

From my own and the observations of other brass manufacturers, these lax and indifferent methods of stock control prompt the opinion that approximately one-third of all the brass stocks in wholesalers' stock rooms are inactive. In addition, many wholesalers have a cashier, whose duty it is to watch a cash drawer that may hold something like fifty to five hundred dollars, but do not have anyone acting in a similar capacity for their brass stock which represents from a thousand to fifty thousand dollars.

While the lack of business today is rather tough on our pocketbooks, still the effects for good will unquestionably pay dividends in the future. One item alone, namely, the real serious thinking which is being done by everyone in the trade, will unquestionably result in improved merchandising methods. Many good resolutions will be made and lived up to, foremost among which will be the resolution to keep stocks clear of dead and inactive dollars and cents.

Lack of Definite Stock Control Is Costly

A definite form of stock control is vital to any business irrespective of size. Plumbing material, particularly plumbers' brass, cannot be classified with the very well-known Kentucky product—the latter improves with age whereas the former does not. Most everywhere in discussing stock control with wholesalers they confuse it terribly with what is known as a "perpetual inventory." That term is not a bit musical—it doesn't grow on you like Coca Cola, while on the other hand it sets up a resistance to common sense methods which should be used. Frankly, you owe it to the brass manufacturers who serve you to keep your house in condition and your stocks balanced to where you can give the service which your customers expect but, unfortunately, seldom demand. Your customer doesn't demand it for one very good reason which many wholesalers overlook; namely, he finds it too easy to get what he wants away from home.

Unfortunately, you cannot see what you do not have; therefore, you do not know what business you are losing because you do not have the material to properly serve your customers. You can sell that which you do not have, but you cannot sell and deliver what you do not have. As a wholesaler, it is vital to your interests to be able to do both. If through indifferent methods of stock control you cannot do that, you automatically drive out of town much business which should have stayed at home.

Another leak which wholesalers should attempt to plug is the loss of business through the attempt to sell cheap material. Today everybody wants "something better" and the wholesaler not carrying good

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* Mr. Ottke is vice president and sales manager, brass division, Standard Sanitary Mfg. Co., Pittsburgh, Pa., and also president of the Sanitary Brass Manufacturers' Association. The above address was delivered by Mr. Ottke before the recent meeting of the National Pipe and Supplies Association at Pinehurst, N. C.

Waiting for More Jobs

By R. L. OTTKE*

brass is just not keeping step with the general trend of the times. I find that poor service to his trade, in many cases, is not due to the wholesaler's lack of desire to give that service, but rather to the stock control methods which he does not employ.

A Suggested Plan of Stock Control

Because of the many varieties of stock control methods, many of which are impractical, the Sanitary Brass Manufacturers Association has outlined a plan of stock control which it believes will answer your purpose. This method has been fully digested with all unnecessary moves eliminated. It is quite simple and I will attempt to briefly outline to you its operation:

It consists of two printed forms—Form "A," the Stock Card. At the bottom is printed description of the article, plate number, size, finish, location, etc. This card is the same on both sides. Above this are four columns, three of these under the heading, "Shipments to Customer," and the other column under the heading, "Direct Shipments." The upper part of card is divided into three sections, one headed, "Customers' Unfilled Orders," another headed, "Factory Order Record." To the right of these two is a small column headed, "Shipments," under which are listed the twelve months of the year, the object being to insert opposite each month the number of pieces of that item shipped during the month. Boiling it down, this card reflects the four important movements you employ with all material—you order; you receive; you ship; and you owe:

First, under "Factory Order Record," you record order placed with your source of supply, date, quantity, etc.

Second, when material is received you make an entry in space in the same section.

Third, similar entry is also made in one of the columns under heading, "Shipments to Customer." This permits your adding that amount to balance on hand.

Fourth, an equally important entry is that covering customers' unfilled orders, namely, orders for material which you are to deliver at some future date.

Form "B"—Brass work sheet, headed, "Daily Record of Deliveries from Stock." This form is kept in the stock room by the stock man. There are twenty columns with blank heading into which stock man will insert the plate number of the article and immediately under the plate number insert the number of pieces shipped or delivered. If during the course of a day's business stock man should fill ten orders for that same item a separate entry is made only of the number of pieces delivered on each order. At the end of the day this column is totaled and sheet is then forwarded to Purchasing Department, where the stock card should be kept and where entry should be made. In several of the stock record plans we studied we found an attempt was made to enter on the stock card every order shipped out during the day. All this is unnecessary, as the purchasing department is only interested in the total number of that particular item shipped the day before. Form "B" makes that possible, in that there is but one entry made on the stock card whether there had been one or ten separate orders for that particular item.

R. L. Ottke

The question has been asked several times why Form "A", the stock card, and Form "B", daily delivery record, could not be kept in one place. This, of course, could be done, but we would recommend the arrangement as suggested above, namely, stock man make his record of deliveries on Form "B" and the card record Form "A" kept in the purchasing department, where it should be. We have found many instances where the stock man was chief cook, bottle washer and everything, and if he chose to give away half the stock room he could do it without much fear of detection. In many jobbing houses it is customary for the stock man to advise the purchasing agent when an order for this or that item should be placed. The reverse should be true, namely, the purchasing agent should, from his stock card, be able to determine when an order should be placed. This will influence placing of such orders with the source of supply before the stock is entirely exhausted, whereas with the stock man in complete control, because of his numerous duties, many items would not be ordered until stock is rather close to zero. This is unfair to the manufacturer, who must either give that wholesaler's order preference over others or be criticized for poor service.

Further data regarding this proposed plan of stock control, together with copies of each of the two forms above mentioned, may be had on application from Mr. R. K. Hanson, secretary, National Pipe and Supplies Association, who, as you know, is also commissioner for the Sanitary Brass Manufacturers Association.

If I may have just a little more of your time, I would like to say just a word or two about mer-

"All of us in this industry should practice in selling that which we cannot help but observe in buying. Go into a store to buy almost anything, the chances are you will come out with something better. In our industry the reverse is too often true."—R. L. Ottke.

chandising. Most of us are not impressed as much with theories as we are with actual facts. Therefore, you doubtless will be interested in the experience of one brass manufacturer who, in a period of eight years, increased his brass business from a little over one million dollars in 1921 to almost seven million dollars in 1929. In my opinion, the three foremost reasons for the success of that manufacturer were as follows:

No. 1—An improved product. Most every item in that manufacturer's line was improved with special care taken to incorporate those practical features which appeal to the plumbing trade and therefore made his material easier for the wholesaler to market.

No. 2—An efficient and intelligent method of distribution. The principal markets were carefully analyzed and the proper stocks placed at points where it was easy for the wholesaler and plumber to use them.

No. 3—Commonsense salesmanship based on facts.

It would be hard to say which of the three is most important. They seem to me much like a three-legged table, remove any one and something will happen.

On Monday it was my good fortune to hear Mr. Beckman's interesting remarks. He referred, you will remember, to statistics. Personally, I do not like the word "statistics"—I prefer to call them "facts." In digging up certain facts this manufacturer learned that he was selling one set of fittings to every six bath tubs; one combination lavatory fitting to every twelve or fifteen lavatories; and one double sink faucet to every twelve or more sinks. These figures proved to that manufacturer that he was only scratching the surface. It is possible you might have the same experience as the three legs of the stool on which that manufacturer built his business also apply to your business and may be to the same extent effective.

Mr. Beckman asked how many of you actually know the facts pertaining to your business. What he said recalled to mind a sign I noticed on the road entering Henderson, N. C. The sign read, "Men have gone to foreign countries in search of riches and on returning found them at home." I am sure if you will go to the trouble of determining certain facts regarding your own business you will likely have a similar experience. May I ask, for example, do you know how many built-in bath tubs you sell in a year and the comparable number of bath fittings; how many pedestal or high-class lavatories do you sell per year and proportionate number of combination fittings? Also the number of one-piece sinks and the comparative number of double sink faucets. If you do this I'll wager you will wonder where all the brass business goes.

Place these facts and figures squarely before your salesmen and you will get results beyond your expectations. The salesmen in our industry are much like they are in any industry—some fly high; some higher than others; others fall down and "go boom." One thing is certain, you can give them definite facts and figures instead of talking to them just in generalities and they will get what you send them for.

"Sell Them a New One"

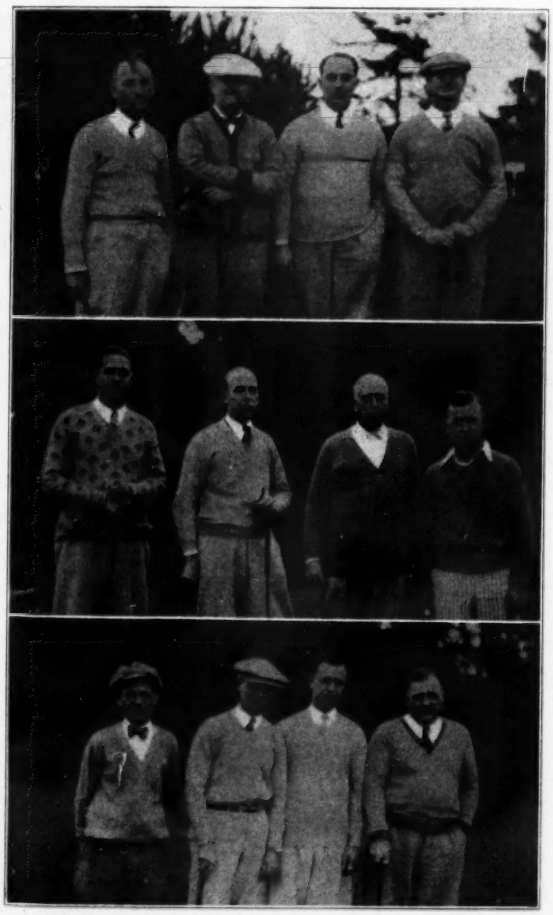
Speaking of salesmen, let me tell you of a good plumber in Southern Illinois who also proved to be a good salesman. I walked into his shop one day and noticed an unusually large number of boxes all containing the same item. I said, "How come so many—are you putting on some kind of a drive?" He answered with the familiar, "Well, I'll tell you it's like this—a very shrewd brass salesman sold me one dozen pair of sink faucets and when I opened the shipment there were twelve dozen pair." I told him it served him right for not sticking to his friends. He said, "I'm cured—I reckon I'll have this stock for five years." On returning to that town eight months or so later I noticed that seventy-five per cent of the sink faucets were gone. Again I said, "How come?" His answer proved the truth of the old saying that "Necessity is the mother of invention." He said, "I got to thinking right then and whenever anyone called me to fix a faucet, instead of fixing it as I had in the past, I sold him a new one. I told each one of the dozen men working for me there were going to be darn few faucets fixed around here until that stock was cleaned up." Needless to say, I used that plumber's experience and tried to get every plumber I called on after that to adopt the slogan, "Sell them a new one."

Again I want to refer to Mr. Beckman's remarks regarding present day production where manufacturers were virtually making two blades of grass grow where but one grew before. That prompts a suggestion in which, however, I will reverse the figures. Let's sell one faucet where we formerly sold two, except, however, make that one faucet a double faucet giving tempered water instead of two single faucets. Where two single sink faucets are used your sale approximates $2.50, whereas a double sink faucet gives you a sale of $6 to $8. Today in some districts built-in tubs are being fitted with a double bath faucet, instead of a combination fitting. The faucet sells to plumber for approximately $3.00, whereas selling price of combination fitting is from $10 to $15.

A question often asked is—how can wholesalers better serve manufacturers? Our first reaction would be—serve us more orders. But, speaking individually for my company and collectively for the Brass Manufacturers Association, we really don't

want you to send us more orders, but rather bigger orders. At the present rate orders are so small when a shipment goes out the back door another order for the same item and from the same wholesaler comes in the front door. A positive stock control will enable you to better anticipate your requirements and we will all be happier.

While I have a minute or two left I would like to make one request and offer one suggestion. The request is just this: Please don't make brass products the football of the plumbing industry. It isn't fair to those manufacturers in the Sanitary Brass Association, who are continually trying to improve conditions and improve their product so that you as well as they can make more money, which after all is the principal objective in any business. After all when you boil it down, there are but a dozen manufacturers of brass goods who give the wholesaler some real assistance in marketing his goods; there are only a dozen or so who advertise nationally, promote the sale of better goods and really create better merchandise. They all take big chances in promoting



Top row: H. F. Allison of San Diego, J. E. McIlreevy and H. K. Browning of San Francisco, C. G. Gamble of Seattle. Middle row: A. B. Campbell of Fresno, A. H. Schunn of Newark, W. Allan Taylor of San Francisco and H. F. Fletcher of Los Angeles. Bottom row: A. C. Hacker and J. D. Fleming of Los Angeles, C. F. Censar of San Francisco and F. B. DeLong of Seattle. Photos taken at the recent meeting of the Western Supply Association

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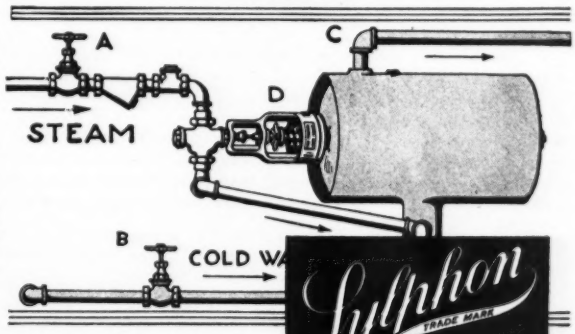
PROBLEM



Sylphon TRADE MARK

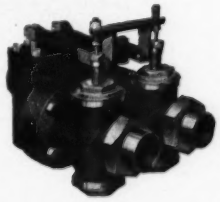
No. 910

STEAM WATER MIXER

The Sylphon Steam-Water Mixer mixes steam with water to heat the water to the required temperature. It may be used wherever hot water is required and steam and water are available (steam pressure must exceed water pressure by at least 15 lbs.). It has a wide range of adaptability in industrial plants for supplying warm or hot water for wash stands, showers and processes of all characters. It is fool-proof, economical, efficient and sold at a price that enables its adoption in each department using hot water.

Only Three Principal Parts

The admission of steam, to heat the water, is controlled by the efficient, time-tried Sylphon Temperature Regulator. The steam valve of this regulator is made entirely of bronze. The equalizing tank is regularly furnished of galvanized iron, with all parts in contact with steam or water, of brass and non-ferrous metals. The Mixing Nozzle is an ingenious device that mixes steam and water with minimum of noise. Essentially the installing of the Sylphon Steam Water Mixer consists of nothing more than hanging it in place and making the necessary steam and water connections. Once adjusted, it needs no further attention.



Thermostatic Water Mixer No. 900

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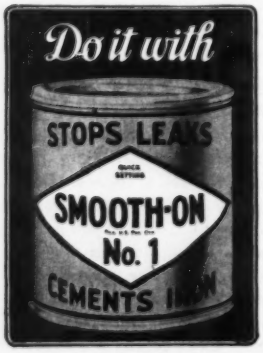
This emergency repair with SMOOTH-ON No. 1 avoided a costly shut-down

RETURNS went to a receiver as indicated in the sketch. Iron nipples in the line to the pump became badly corroded and had to be replaced with brass nipples. The Engineer figured on Sunday dismantling and reassembling as the only time the machinery could be idle without loss. He had no difficulty in getting the line apart, except for a nipple which broke off at and staid in one end of a 2-in. x 3-in. x 2-in. tee. A helper was asked to chip out this old end and run a tap through the tee to true up any threads which might have been damaged.

This man drew up the tee so tight in a vise that a V-shaped piece broke out of the hub end. No replacement was available.

The Engineer kept Smooth-On No. 1 in his cupboard and knew what it could do. First he found an old coupling that with the threads filed down would fit closely over the broken end of the tee. He sawed a band 5/8 in. wide off one end of this coupling and filed down the threads so that the band would almost slip over the break. Then he screwed into the break a nipple with Smooth-On No. 1 on the threads, and fitted the broken piece of the tee into place over the threads with more Smooth-On No. 1. The band made from the old coupling was heated to cherry red and slipped and forced over the repair and left to cool. Shrinkage of the band in cooling and expansion of the Smooth-On No. 1 in hardening made the tee usable, and the plant started up on time the next morning. For five years this repair gave perfect service. It was discarded then only because the receiver was replaced by a direct-return trap.

Instances where Smooth-On No. 1 is the means of avoiding heavy loss from excessive shut-down are occurring every day. *Be prepared.*



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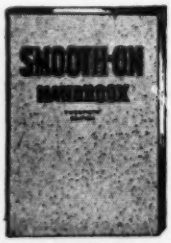


SMOOTH-ON

new ideas, only to be met with cold indifference from the wholesaler distributing his product.

In other industries, such as the automobile and radio, the distributing arm of the business cannot wait until new models are on the market, they fight for them and talk about nothing else. Unfortunately, this is not true of our industry, particularly in the brass end. When a manufacturer makes a new model in quantities to permit proper costs, instead of the wholesaler grabbing it and going after his salesmen to push it and create new business, they usually stand aside, scratch their heads and wonder if it is going to be a good thing. The very doubt they express filters into the minds of their salesmen and the result is the manufacturer has to do all of the actual selling and promoting.

All the manufacturers in the Sanitary Brass Association are alive and active. Most all are creative, but their principal virtue is that they are all practical, which means that you needn't worry much about the material they place on the market. Unquestionably, it has stood many very unusual tests to determine its practicability, and if there is one thing a plumber insists upon in brass it is that it must be practical.

In most any other industry, particularly automobile and radio, they have a fairly definite period of obsolescence; however, in our industry everything seemingly must be everlasting. I believe it would be a safe guess that one faucet or one bath tub will outlive ten automobiles. Then too, there are doubtless a million or more faucets still giving service which were installed long before Henry Ford made his first automobile.

The suggestion I would like to leave for you to take home and think about is just this: All of us in this industry should practice in selling that which we cannot help but observe in buying. Go into a store to buy most anything, the chances are you will come out with something better. In our industry the reverse is too often true. Let's get out of our minds the mistaken idea that to increase our sales we must have an increase in the number of jobs. Let's replace all of the "hit or miss" methods with some real selective selling and we will learn it is far simpler and much more profitable to sell, for example, one double faucet for eight dollars than it is to sell four pairs of single faucets at two dollars. The former requires but one installation, the latter four.

We cannot do much about 1930—we have gotten off to a bad start, so let's "take it on the chin and grin" and then clean house of both out-of-date material and methods and load our guns for a bigger and better 1931. Let's all adopt the slogan, "Sell 'Em Something Better," and get a bigger slice of the public's dollar more in keeping with our appetite.

◆

Coast Counties Association Elects Officers

The Coast Counties Merchant Plumbers' Association, Pacific Grove, Calif., elected the following officers for 1930: E. F. Phillips of Salinas, Calif., president; Charles Saufnauer of Hollister, vice president; E. Simpson of Pacific Grove, secretary; and Fred Cope, Pacific Grove, treasurer.

THE TRADE NEWS

News of Plumbing and Heating Contractors

National Association of Master Plumbers Opens Executive Office

George W. Frank of Buffalo, N. Y., secretary of the National Association of Master Plumbers, has just announced that the executive office of the National association has been opened at 640 Ellicott Square, Buffalo, N. Y.

In a letter calling this matter to the attention of all state and local secretaries, Secretary Frank says in part:

"President Drake's desire is to give to the membership in general a clean, honest and constructive administration.

"This can only be accomplished with the aid of the united co-operation of our membership—in State and Local Associations.

"It will be our endeavor to promptly answer all communications and we expect in return the same from the state and local secretaries.

"Fulfillment of promises made can be accomplished by prompt and sincere co-operation by all concerned.

"Therefore, let us be frank in our statements, discussions and correspondence, for if secretaries fail in their duty, we fail in ours.

"It would be far more gracious to withdraw and let those who have the welfare of their industry at heart perform such duties, than not to be open in discussions and allow those who are desirous of co-operation to assume the burden."

Boston Pays Tribute to Vice President P. W. Donoghue

On Thursday evening, July 17, more than 250 persons associated with the plumbing and heating industry in Massachusetts, gathered in the grand ballroom of the Hotel Statler, Boston, to pay tribute to P. W. Donoghue, vice president of the National Association of Master Plumbers.

Among the invited guests were: National President George H. Drake of Buffalo; Past National Secretary Maney J. Feeney of Philadelphia; Major Charles Hardy of Boston, a special representative of Mayor James J. Curley of Boston; Colonel Charles Gow, toastmaster for the city of Boston, and president of Warren Bros.; the Reverend Father Holloran, Mr. Donoghue's pastor; Past National Treasurer Richard J. Welch of Lowell, Mass.

James G. Gillespie, chairman, welcomed the guests, saying that the National association was fortunate in having a man of Mr. Donoghue's type as vice president. Mr. Gillespie introduced James S. Cassedy, of Boston, as toastmaster of the evening.

Mr. Cassedy proved his ability to fill this office, and, in his introductory talk, the keynote of which was "friendship," remarked that those present were gathered to pay tribute to Mr. Donoghue as a great friend, a hard worker, a master plumber and a gentleman and a man that worked day and night, unceasingly, to give to the entire country a great National convention in Boston.

Mr. Cassedy introduced National President Drake,

Photograph taken at testimonial dinner given in honor of P. W. Donoghue of Boston, vice president of the National Association of Master Plumbers

who had made a special trip from Buffalo, to attend this friendship gathering. Mr. Drake expressed the regret of National Treasurer Geo. W. Frank, in his inability to attend. Mr. Drake gave Mr. Donoghue much credit for the success of the Boston convention.

Mr. Cassedy traced the history of the founding of the ladies' auxiliary in Massachusetts, and explained how the auxiliary has made a large contribution to the National association's welfare. He introduced Mrs. J. Preston Perham of Boston, vice president of the National auxiliary, who told of the founding, with the assistance of Mr. Donoghue, of the Massachusetts auxiliary.

Major Hardy expressed the great interest shown in the recent National convention and exposition. He felt it was a great educational program to the citizens of Boston.

Colonel Chas. Gow traced his years of friendship with Mr. Donoghue and said that it gave him great pleasure to be present.

Joseph Maynard, president of the Eastern Supply association, stated that the event gave all a chance to show, in a small way, their appreciation of the faithful efforts of their friend, Mr. Donoghue, to build up the industry and to promote the profession to a higher level.

Rev. Father Holloran stated he knew a lot more about the host of the evening than most of those present, adding that Mr. Donoghue, in 19 years of his friendship, had proved himself every inch a man, a christian and gentleman, faithful to every duty to God and fellowmen.

Albert Roberts, president of Boston Master Plumbers' Association, expressed, on behalf of the Boston association, the sincere appreciation of the help given them during their recent undertakings in the National convention.

H. W. Thorndike spoke for the wholesale branch of the industry and expressed its token of esteem and respect.

Past Treasurer Welch offered his congratulations, as did Mrs. Herbert Rose, president of the Boston auxiliary. She also paid tribute to Mrs. Donoghue for her loyalty. James J. Cotter, of Boston, who addressed the gathering, presented Mrs. Donoghue with a bouquet of roses as a token of friendship and to Mr. Donoghue a silver service, expressing to both that these gifts were preservers in some material way of the goodwill and appreciation of both their contributions to mankind.

Mr. Donoghue thanked all his friends on behalf of Mrs. Donoghue and himself for their great kindness, saying that they were giving him credit for work that rightfully belonged to his various committees.

James J. Cotter, in closing the reception requested that Mr. Mattison, National convention secretary, be escorted to the platform, where he was presented with a leather traveling bag.

◆

Milwaukee Masters Picnic at Cedar Lake

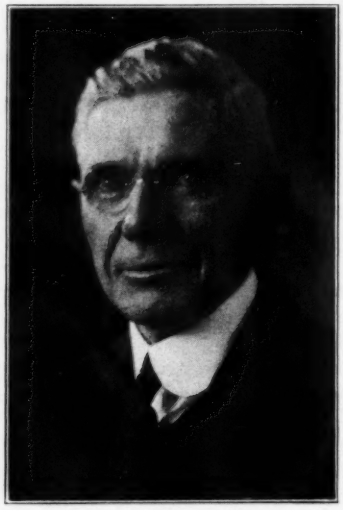
The Washington Park division of the Milwaukee Master Plumbers Association held an outing at Cedar Lake, Wis., on June 26. The feature event of the day was the ball game between the master plumbers and the salesmen. Al. Traudt of the Milwaukee Lead Works acted as umpire. The game ended with a score of 8 to 7 in favor of the salesmen.

Other activities included horseshoe games, swimming, fishing and cards. The Washington Park division plans to hold additional affairs of this kind this summer.

Death of Lawrence McNamara

Lawrence McNamara of St. Louis, Mo., past president of the National Association of Master Plumbers, died Tuesday, July 15, at his home in that city after a three day illness. The funeral took place Thursday, July 17 from the church of Our Lady of Lourdes.

His many friends and associates in St. Louis were shocked at the news of his death as he was apparently in good health upon his return from the recent 48th convention of the national association in Boston, in which he took an active part. He also attended the meeting of the board of directors of his local association on July 11 and had no complaint to offer. He was stricken with a heart attack on Saturday, three days before his death.



L. McNamara

Mr. McNamara, who was in his 69th year, embarked in business thirty-five years ago. His company did a national business, specializing in hospital and other institutional work. He had an untiring interest in the advancement of the plumbing industry and was a great believer in the education of the young man embarking on a business career. He was always ready to give the benefit of his experience to anyone seeking information.

After Mr. McNamara was elected national president in 1917 he founded the policy of education which eventually led to the formation of the Trade Extension Bureau. He had the unusual distinction of serving the national association for more than one term as president. His last important assignment was as a member of the committee appointed to frame federal trade practice rules.

The national association was represented at the funeral by John J. Vogelpohl of Cincinnati, O., past national president; H. O. Green of Tulsa, Okla., national treasurer; Jere Sheehan, Jr., of St. Louis, past national president, and Mrs. E. D. Hornbrook of Kansas City, Mo., who represented her husband, a past national president, who was ill. In addition to the national representatives, William G. Bergner of Granite City, Ill., and William Schlegel of Belleville, Ill., were also in attendance. Mr. McNamara is survived by his widow, five daughters and three sons.

Wisconsin Association Begins Plans for 1931 National Convention in Milwaukee

The Wisconsin Master Plumbers' Association is already making tentative plans for the entertainment of the National Association of Master Plumbers in Milwaukee in 1931, Lewis R. Friend, president of the Wisconsin state association, has announced. "We have held a preliminary meeting discussing plans for the convention," said Mr. Friend, "and we are going to work consistently on a program from now on, so that we can put the next national meeting down as one of the most successful conventions ever conducted."

◆

New Trade Golf Association for Connecticut

Members of the plumbing and heating industry in Connecticut have planned a golf meet to be held July 31 at the Mill River County club, Stratford, Conn. It is proposed to form a permanent organization at this tournament, to be known as the Connecticut Golfers' Trade Association. Manufacturers, jobbers, salesmen and plumbing and heating contractors are eligible for membership.

Frank E. Doyle, president of Frank E. Doyle, Inc., New Haven, will be host and heads the committee on arrangements. Other members of the committee are Morris K. Blackwell of Wolverine Brass Works; Ernest O. Nelson, Bridgeport contractor, and Lester E. Finch, executive secretary of the Bridgeport Master Plumbers' Association.

◆

Norfolk Association Starts Membership Drive

The Master Plumbers and Heating Association of Norfolk, Va., held its regular luncheon meeting at the Fairfax hotel, on July 8, the appointment of a membership committee by President Duell being the feature event of the gathering. Those appointed to the committee are David Draft, Alex. Ellington, Virginius Stell and A. R. Thompson.

The regular meeting of the Heating and Piping Contractors Norfolk Association was held at the Fairfax hotel on July 15. This was a luncheon meeting.

◆

Samuel Raisler Dies in New York City

Samuel Raisler, president of the Raisler Heating Co. and the Raisler Sprinkler Co., 129 Amsterdam avenue, New York City, died suddenly on July 16 at his home, 173 Riverside drive, New York City, as the result of a heart attack. He was in his 56th year. Born in Austria, he came to the United States when he was a boy, entering the service of the American Radiator Co., New York City. In 1898 he founded the Raisler Heating Co. and became its president. In 1913 he founded the sprinkler firm. He also was a director of the Grimes Sprinkler Co. and the Sterling National Bank and Trust Co., all of New York City.

Mr. Raisler was a member of the Business Men's Council of the Federation for the Support of Jewish Philanthropic Societies, a trustee of the West End Synagogue, a director of the Convalescent Home for Crippled Children at Far Rockaway, and a member of the City Athletic, Norwood Country and Oak Ridge Country Clubs and of Shaaray Tefila Brotherhood. His wife and three children survive. Funeral services were held July 18 at West End Synagogue.

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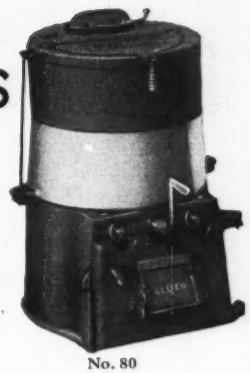
TANK HEATERS
THAT BRING YOU THE
EASIEST
PROFITS



No. 80

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State Presidents Attend Dinner at National Convention

Representatives of many state associations attended on June 24, during the Boston convention of the National Association of Master Plumbers, a dinner for the state presidents. National President George H. Drake presided and gave each state representative an opportunity to comment on business conditions.

The representatives who spoke included the following presidents of state associations: S. E. Scholze, Alabama; E. J. Harrington, Arizona; Claude Hickman, California; Edwin B. Clayton, Colorado; William J. Henry, Connecticut; E. L. Clevenger, Indiana; John L. Zehnder, Kentucky; C. A. Hunter, Louisiana-Mississippi; N. M. Knudsen, Maine; P. W. Donoghue, Massachusetts; Glen P. Seeley, Michigan; Louis Fink, Missouri; Alexander T. Berg, New Jersey; William E. Stradling, New York; J. J. Cosgrove, Oklahoma; E. D. Swoyer, Pennsylvania, and Lewis R. Friend, Wisconsin.

Talks also were given by other state representatives, including Harry Perkins, Florida; Ray W. Bixby, Nebraska; E. B. Kleine, Ohio; W. R. Dosher, North Carolina; Roy E. Thompson, Washington; Percy Todd, Tennessee. A. Mistofsky, president of the Providence, R. I., Association, spoke for Rhode Island.

Among the guests who talked briefly, were Theodore Ahrens, president of the American Radiator & Standard Sanitary Corp.; Fred W. Swanson, president National Plumbing and Heating Institute; Judge Roberts of Philadelphia; Walter Kohler, Jr., Kohler Co.; Charles R. Crane II, of Crane Co.; Andrew F. Curtin, of A. F. Curtin Valve Co.; Richard Welch of Lowell, Mass.; Albert E. Roberts, president of the Boston association, and James Cotter, of Boston.

◆

Chicago Masters Hold Annual Outing at Viani's Grove

The North and West Side Master Plumbers' Pleasure Club of Chicago, Ill., held its annual outing and picnic at Viani's Grove, Park Ridge, Ill., July 16. The weather was perfect and a large attendance of master plumbers, their wives, children and guests turned out for the occasion.

The baseball game between the salesmen and the master plumbers was won by the salesmen with a score of 12 to 11. Another event on the program, a race between master plumbers' wives, was won by Mrs. Alfred Grosch, first, and Mrs. W. E. Bahn, second. The race between masters under 40 years of age was won by A. G. Petersen and William Adams, while the race between plumbers over 40 was won by L. P. Markowski. The stout ladies' peanut race was won by Mrs. B. Witz and Miss M. Mele.

The entertainment committee was composed of Robert Nelson, chairman; H. E. Skibble, C. H. Heagle, George Matthews, L. P. Markowski, Harold Stif, and E. Benning.

Dancing was enjoyed in the pavilion by many of those in attendance during the afternoon and evening.

Washington (D. C.) Masters To Hold Outing July 30

The Washington (D. C.) Master Plumbers Association is planning on holding its annual picnic and outing at Chapel Point, Md., on Wednesday, July 30. The committee in charge is preparing for a large attendance and an interesting program has been arranged. Frank A. Kerr is president of the Washington association.

◆

Fairfield County Masters Plan Outing

The Master Plumbers' Association of Fairfield County, Conn., will hold its outing on August 6 at Dorlan Park, East Norwalk, Conn. Oscar Noyd is chairman of the committee on arrangements and he is assisted by J. M. Forger, William Henry, Stephen Miller, J. F. McNamara, Harold McGill, Fred Gortz, P. Bernard, and Harry Nathan.

◆

Wisconsin P. & H. Club to Hold Golf Meet at Waterford Woods

At a meeting of the Plumbing and Heating Club of Wisconsin, held July 17, it was decided to hold another golf tournament at Waterford Woods, Waterford, Wis., on August 7. Tentative plans for other entertainment during the summer, to include a joint picnic of all plumbing and heating groups of the city, were also discussed in detail.

◆

Manhattan Masters Plan Outing

The annual outing or the Manhattan Association of Master Plumbers is planned for August 27 at Karatsonyi's, Glenwood Landing, L. I. Edward J. Healy and Joseph R. Spellman head a committee of fourteen who are participating in consummating the plans.

◆

West Hudson Masters Hold Annual Outing

The West Hudson, N. J., Master Plumbers' Association held its ninth annual outing at Cedar Grove, Atlantic Highlands, N. J., Saturday, July 12. Swimming, baseball and other athletic games were enjoyed by those in attendance. The committee in charge of the affair included Louis Saporio, chairman, Joseph Emery and George Geisler.

The baseball game between the salesmen and master plumbers was won by the masters with a score of 16 to 5. The broom polo game was won by the salesmen over the master plumbers.

Left to right: C. Meyers of W. V. Egbert Co., Newark, N. J.; B. Owen, Harrison, N. J.; R. M. McDonough, financial secretary, Harrison; F. A. Gallagher, of William J. McDonough & Sons, Harrison. Photos taken at outing of West Hudson Master Plumbers Association

Death of John T. Bradley

John T. Bradley, past president of the Heating and Piping Contractors National Association, and its veteran sergeant-at-arms, died July 13 in his 72nd year. His friendly smile has been greeting those who attended conventions since 1918 when he became sergeant-at-arms, in which capacity he served until the time of his death.

Mr. Bradley was elected vice-president of the national association in 1913, and president in 1914, serving in that office for two terms. Born in St. Louis, Mo., he learned the trade of steamfitting and worked as a journeyman in that city and in Denver, Colo. He began his career as a heating and piping contractor in Denver and in 1896 organized J. T. Bradley & Co. in St. Louis, and in 1905 he incorporated the Bradley Heating Co., which is still actively engaged in the heating business.

He was prominent in banking circles and was president of the Vandeventer Trust Co. for several years, also of the Veterans' Volunteer Firemen's Association. Mr. Bradley was a member of Elks Lodge No. 9 and also of the Veterans' Volunteer Firemen's Association of Denver, Colo. He was a life member of the American Society of Heating and Ventilating Engineers and served on the council in 1911. The funeral was held July 16 from the Church of the Blessed Sacrament, where a Requiem Mass was offered by Rev. Harry Bradley, a cousin. Mrs. Bradley, two sons and five grandchildren survive.

◆

Plumbing Code Approved at Meeting of Florida Plumbing Inspectors

Adoption of a uniform code for guidance of master plumbers and municipal plumbing inspectors throughout the state was approved as the final business of the Florida Society of Plumbing Inspectors, in semi-annual session at Tampa.

Principles recommended by the sanitary commission appointed by President Hoover several months ago, it was decided, would be used as a guide in the formulation of the proposed uniform code.

Officers of the society are: W. G. Waters, West Palm Beach, president; O. A. McIntosh, St. Petersburg, first vice president; C. O. Langston, Jacksonville, second vice president; J. H. Tomkinson, Boynton, third vice president; C. S. Kulp, St. Petersburg, fourth vice president; Anthony Schleman, Tampa, fifth vice president; O. A. McIntosh, secretary and treasurer.

The executive committee is composed of H. L. Schaller, Miami; R. J. Phillips, Tallahassee, and J. A. Bronzonie, Tampa.

◆

Connecticut Masters Set Outing Date

Lake Compounce, near Plainville, Conn., has been selected as the place at which the Connecticut State Master Plumbers' Association will hold its annual summer outing on August 21.

◆

New Bedford Masters Set Outing Date

The New Bedford Master Plumbers Association, New Bedford, Mass., has selected Thursday, August 14, as the date for its annual outing. The affair will be held at Fort Phoenix, Fairhaven, Mass.

All sizes of ARMSTRONG *Improved* Chain Wrenches have these features.

All sizes of ARMSTRONG Chain Wrenches, from the little 14-inch ones to the big 8-footers that are used in the oil fields, embody the same improved features. The bearing of the jaws on bar is greatly increased. A large bolt keeps the jaws securely in place. Forged-in-lugs serve as chain guides, prevent chains from jamming. Handles are drop forged from steel that gives both stiffness and "spring." Jaws are forged from special steel, treated, hardened and tested for toughness. Chains are proof-tested to ⅔ catalog strength (1,200 lb. to 40,000 lb.), have proven strength. Reversible jaw tongs are made for those who prefer them.

Detail of ARMSTRONG CHAIN WRENCH showing forged in lugs.

Write today for Cat. P-10 showing full line of BETTER Pipe Tools.

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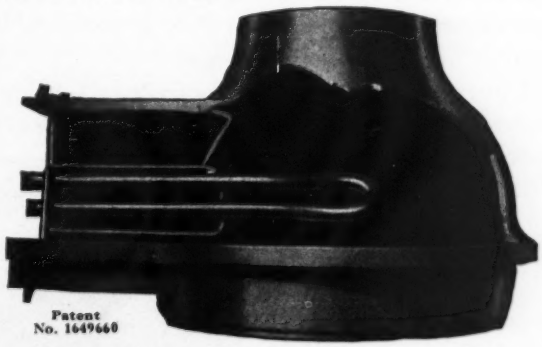
"The Tool Holder People"
323 N. Francisco Ave., CHICAGO, U.S.A.

ARMSTRONG BROS.

The GLOBE Sizzler
THE NO-POCKET, ONE-PIECE FURNACE COIL



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A Real Money Maker for You

THE Globe Sizzler puts real profits into your furnace coil business. It costs but little more than making up ordinary coils; installation is quicker, and you get about three times the profit.

The Sizzler is the only one-piece, no-pocket coil made, providing circulation always in an upward or horizontal direction. Assures free, noiseless flow of water because it can't clog or lime up. *Write us for full information today.*

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The Globe Sizzler is made in different lengths to fit all makes of furnaces. It comes to you ready for installation, each coil packed in an individual carton.

This attractive Dayton, Ohio, home is T/N equipped. Architects, Smith-Chamberlain. Plumbing Contractors, Meyer Plumbing Co. Jobbers, W. H. Kiefaber, Co.

WATCH
new building
but push replacements

. . . there's a T/N profit in both jobs

SEE to it that T/N is first choice for new homes in your town, but don't let the remodeling business slip through your fingers. T/N's compact design fits it perfectly to both jobs. No wall tank, so it goes under stairs, under windows, into corners. T/N is so quiet you can scarcely hear it through a closed door. It's modern in appearance—has *style* that *means* sales these days. T/N is perfectly at home in big bathrooms and small.

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Patented. Pat. Pend.

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Established 1853

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Buffalo, N. Y.

T/N

ONE PIECE WATER CLOSET

Pipe Salt Water to Seaside Pool

(Continued from Page 52)

ing any electric connections or emptying the pool. These lights vary in depth below the surface from two feet and five inches to three feet and six inches, the greatest depth being at the deep end of the pool. They are not uniformly spaced as it was determined by experimentation that the best effect was secured by putting the lights closer together at the deep end of the pool. The electric circuiting consists of three wires for each two circuits with four under-water lights per circuit. Lead covered cable was used throughout the job, run in galvanized conduit installed in the concrete of the pool scum gutter. The fountain previously described is illuminated by means of three 250 watt underwater fountain lights similar in construction to the pool lights. Four flood lights were provided, two of which flood the high diving platform which is above the filtration building. In general the design of the illumination was very successful, especially as regards the under-water lighting, for with all other lighting turned off and the underwater lights all on, the pool is beautiful.

The wood stave alum and soda tanks with their orifice feed valves are located directly above, and discharge into, the pump suction tank in the filtration building. A duplex sump pump was also provided to care for the floor drainage and sub-surface drainage below the floor of the filtration building. These pumps discharge into the filter backwash line to the sound.

◆

Bronx Association Sets Date for Outing

The Bronx Master Plumbers' Association has set August 20 for its outing at Karatsonyi's, Glenwood Landing, L. I. The committee making the plans is as follows: Fred Schmalstich, chairman; S. George Arnone, secretary and treasurer; Alfred Beyrodt, W. F. Ebner, and Anthony Platt.

◆

Maryland Association Will Hold Annual Outing at Grove Beach

The Master Plumbers' Association of the State of Maryland will hold its yearly outing on August 21 at Heintzemann's Cottage, Grove Beach, Md. Charles Wachsmuth is chairman of the committee on arrangements and is being assisted by Samuel E. Houck, August V. Eidman, Herman Treff, William H. Mitchell and John W. Clark, executive secretary.

◆

Joins Peoria Association as Secretary

R. D. Ticknor, secretary at Champaign, Ill., of the Plumbing and Heating Merchants Association of Champaign-Urbana, is leaving this association to take over the same duties with the Peoria Master Plumbers Association of Peoria, Ill.

◆

Rhode Island Association Plans Outing

The Rhode Island State Master Plumbers Association will hold its annual outing at Jim Smith's Inn, Warwick, R. I., on Saturday, September 13. The affair is to be for both men and women.

Keeping a Fleet of Repair Trucks Profitably Busy

By BRUCE WIGLE

Bruce Wigle

A DISCUSSION of the Equipped Service Truck for the plumbing and heating contractor is most easily handled by considering the various phases the truck presents in its everyday operation. In order to deal specifically rather than in generalities, I am going to take the liberty of giving some of my own experiences.

Our shop first began using an equipped service truck about nine years ago. Prior to that time we had done a new construction business as well as a fairly good jobbing business. We have been located in a fine residential district for the past sixteen years. Repair work as well as remodeling work came with practically no effort on our part.

One thing, however, that made the repair end of the business unpleasant at times was that people often complained about the high cost of repair bills. When these complaints were analyzed it was found that practically all of them were complaints on labor. Either the workmanship was unsatisfactory or the time taken to do the job was considered too much. The latter complaint invariably was from a job where the mechanic had to go back to the shop for additional material or tools, or to cut a thread on a piece of pipe, or for any one of a good many other reasons. At that time our men carried their tool kit with them and either rode a bicycle, walked or took a street car to the job. If the job was larger he was then driven to the job and dropped off with his material, pipe vise, stocks and dies, and was picked up later when the job was finished.

Former Difficulties

Those jobs, however, where the men had to make one or more extra trips back to the shop were a continual source of annoyance. It often happened that the time consumed or lost on these trips was several times over the time actually required to do the job, and of course the complaining owner rarely forgot to mention that he hoped the plumber had had a good sleep while he was away from the job, inasmuch as he had been gone so long.

In order to improve this situation we made a portable box affair which had bins opening from the outside, and stocked it with a small assortment of fittings, closet supply valves, sink faucets, etc. This was made to fit on to a Ford pick-up box. The portable idea was that if the truck had to be used for other purposes, the box containing this material could easily be removed and the truck was on its way delivering bathtub, soil pipe, etc. After using this arrangement a short time I was thoroughly sold on the idea that it was a big improvement over the old idea of walking to the job and going back to the shop to get what was needed. Our customers also commented favorably on it. It saved time, and saving time was saving them money.

About this time an article appeared in one of the trade papers by a plumber who was operating a fleet of trucks which were equipped to handle repair work. It showed a picture of the exterior of the truck, and gave some detail as to its operation. He used a panel body job with bins or drawers on one side of the truck. There was also a vise and vise plank which was fastened to the floor and could be slid out beyond the rear of the truck while in use. It also carried a 30-gallon range boiler suspended from the ceiling of the truck.

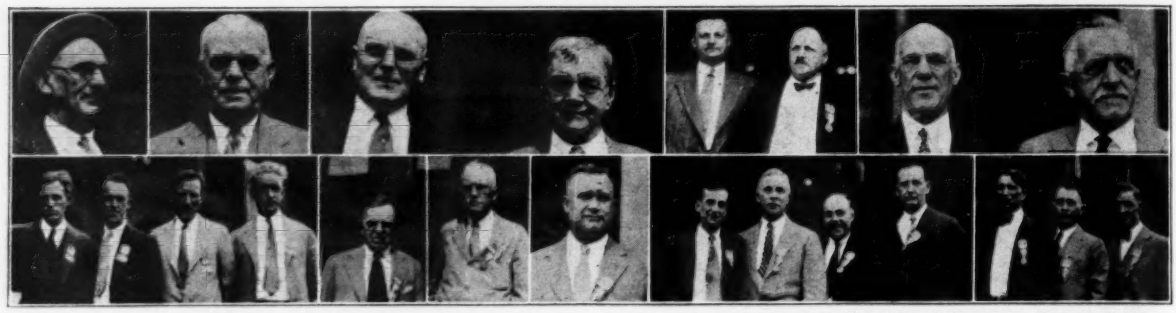
I read the article with a great deal of interest and decided that if he could keep a fleet of these trucks busy I ought to be able to keep at least one going full time. Accordingly, in a short time I had a truck on the road, using a Ford Model T chassis with a Martin-Parry panel body. The bin arrangement on the inside was according to my own ideas and we put in a liberal assortment of material to handle the average repair job. The idea worked splendidly. This was a big improvement over our portable affair, as there was more room and we could carry a much greater assortment of materials. The appearance of the truck was also much better, which is a big consideration.

Advantages of the New System

Our men liked it very much too, and why shouldn't they? They no longer had to walk to the job carrying a heavy tool kit. They had sufficient material and a tool equipment to handle practically all of the smaller work in the one trip. The customer didn't bawl the man out because he had to go back to the shop to get something; instead he was complimented on the splendid idea. He had gained the customer's good will, and that means as much to the mechanic as it does to the master.

We soon found that the mechanic on this truck was handling more work, and installing more material than previously. This of course was gratifying to us, because the more material we can sell per labor hour the more money we make. That is easily illustrated by the following example: Let us assume that upon arriving at the job the owner asks him to repair both hot and cold sink faucets which are dripping. Let us assume that it would take thirty minutes to repair them, but they are old and worn and look badly and should be replaced.

An address by Bruce Wigle of Detroit, Mich., before the educational meeting at the recent convention of the National Association of Master Plumbers.



Top row: W. J. Schlegel, Belleville, Ill.; George F. Uber, T. F. Dempsey and C. J. Doyle, all of Philadelphia, Pa.; H. J. Muller, Bronx, N. Y.; C. A. Schleininger, Staten Island, N. Y.; Charles R. Reeves and L. J. Craig, both of Philadelphia. Second row: Robert Paterson, J. H. Law, George Paterson and H. L. Buckley, all of Carpenter & Paterson, Inc., So. Boston, Mass.; G. T. Watson, Indianapolis, Ind.; Charles J. Miller, Crown Point, Ind.; A. F. Neumann, Plainfield, N. J.; C. C. Coles, Alex. Thane, N. Triana and D. T. Thurnau, all of Union City, N. J.; C. M. Goger, H. S. Blank and H. S. Saunders, all of Dayton, Ohio. Photos taken at the Boston convention of the N. A. M. P.

If he repairs them he may have a material charge for washers of approximately 50c with a gross profit of 30c. On the other hand, if he sold the owner a new chromium plated swing-spout sink faucet for $15.00, with a gross profit of $6.00, we would be $5.70 better off, and the labor charge would be approximately the same in both cases.

Often when the plumber would suggest new faucets, closet seat or whatever it was, the owner would ask if he had it with him. If he didn't, the answer usually was, "Well, just repair the old one and we'll use it for a while longer." In other words, a great deal of material was sold simply because the mechanic had it with him and could show it on the job.

As we put on more trucks we found the advisability of using a heavier chassis because the lighter chassis developed trouble in the springs, tires and rear axle, due to the load we were carrying, so we adopted the Ford one-ton chassis with panel body and have used Fords ever since.

Experience also showed the necessity of standardizing on the number, size and location of bins. After a few changes we definitely adopted a layout and have made practically no changes in the past four or five years.

Specifications for the Trucks

The inside measurements of the truck are as follows: Eight feet long from the rear of the driver's seat to the back doors, 4 feet wide and 4 feet high. There is a 2-foot aisle way in the center of the truck, with a row of bins on each side running full length and extending from the floor to the roof. These bins are numbered from 1 to 75, the odd numbers on the left hand side, the even numbers on the right. The pipe box is outside on the left side and is the length of the body so that it easily takes a length of pipe cut in two. There is also a tool compartment slung between the two timbers of the chassis under the rear end of the car. This compartment is approximately 40″x26″x14″ and has a shelf to carry sewer cables laid flat. Under the shelf is plenty of space to carry large stocks and dies, small stocks and dies, cutters, reamer, oil can and some of the mechanic's tools. The vise plank extends from the top of the right rear fender to the rear of the truck.

We also settled on a definite inventory of material which each truck should carry. Each bin has a card which is covered with isinglass to protect it and which shows the item or items in the bin, the quantity and unit price of each item. The quantity is shown on the cards to facilitate both stocking the truck and also rechecking it, which I shall explain in more detail later on. An alphabetical list of material showing bin number is also in the rear of the truck which helps locate any item quickly.

Twenty-six of our equipped service trucks are duplicates as to size and layout, and there are two additional equipped trucks which are used for a different purpose, so that they are not standard. Then as I have said, each truck carries the same material so that no matter what truck a mechanic takes out he knows that ¾″ galvanized unions are in bin No. 34, and flush balls are in bin No. 35, and so on. I do not mean to leave the impression that a mechanic can take just any truck, but it is often necessary to switch trucks to make repairs or for some other purpose.

Keeping Stock Systematically

The question of replacing the stock in the truck as it is used out is a serious one. It has been our experience that unless a systematic method of replacing this material regularly is followed, that it is only a short time until the truck becomes nothing but a junk pile. This of course is disastrous because the mechanic never knows what he has or what is missing, and it is very annoying to everybody concerned to get out on the job and find you are short an item which you should have.

In our shop, when the men have their work orders checked at night, together with their time card for the day, the work orders are sent to the stock man who proceeds to separate all orders handled by each truck. He then takes all truck No. 1 work orders and with a bucket numbered to correspond with the truck number, gets out all material used that day from truck No. 1 The same thing applies to all of the trucks and the next day this material is replaced. The alphabetical list of material on the truck, together with the cards on the bin facing greatly facilitate putting this material back.

It is also desirous from several angles to check the material in the truck regularly to see that it compares with the standard inventory. In this way a check is made on the mechanic and he knows it, so that shortages are reduced to a minimum. Of course, as the number

of trucks increase, so does the necessity of rigidly adhering to some definite system.

Operating Costs

Now a word as to cost of operating these trucks. Our records show that it cost us approximately $2.00 per day or 25c per hour to operate an equipped service truck. This figure is arrived at on a day basis as follows:

Depreciation	$ .76 per day per car
License	.11
Gas .32, oil .05	.37
Tires	.06
Garage	.24
Repairs	
Garage Mechanic .17	
General Repair .18	.35
Insurance	
Fire and Theft .01	
Public Liability .10	.11
Total	$2.00

We arrive at these figures as follows:

Depreciation is based on a cost of $807 for truck, plus $205 for all special work including bins, pipe box, gold leaf lettering, etc., making a total cost of $1,012. Depreciation is based on a four-year period with $100 resale value at that time, which makes a net depreciation of $228 per year, or 76c per day, based on 300 working days per year.

Gas and oil item of 37c per day. Our trucks average 17½ miles a day, or 11 miles to a gallon of gas.

Tire item of 6c per day. Based on buying four new tires at the end of the third year at a cost of $150 for tires and tubes. Assuming the life of car to be four years this would allow one year use of new tires, or 1/3 of the life of tire, which works down to 6c per day .

Top row: Joseph Anthoyne, Lewiston, Me.; J. L. Landgren, Berlin, Conn.; Robert Davidson, Hartford, Conn.; George M. Hicks, Philadelphia, Pa.; H. L. Dosher, Wilmington, N. C. Bottom row: J. E. Lanou, Burlington, Vt.; "Cal" Grover, National Radiator Corp, Boston branch; M. Mele, Chicago; James Loftis, Atlanta, Ga.; Robert La Centra, Jr., Boston, Mass. Photos taken at Boston convention of the N. A. M. P.

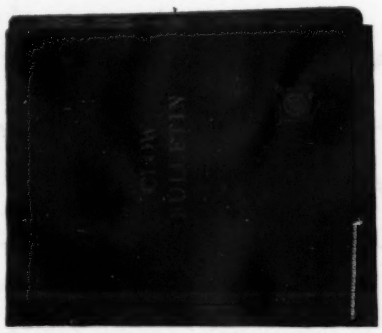
Garage item of 24c per day based on $6 per month rent. This should be taken into account whether you own your garage or not. Insurance item of 11c per day is based on fire insurance $2.73 per year, and Public Liability $29.57 per year for $10,000-$20,000 limits.

Repair item. This item includes:

1st: Garage mechanic time $1,875.26 per year, divided over 37 cars, 17c per day. This mechanic keeps cars in repair, keeps cars washed and polished, painted and varnished, greased, oiled, checks water and batteries and alcohol in the winter.

More than 5000 plumbers hire this "never-wrong"

ESTIMATOR, INVENTORY TAKER, BUYER, INVOICE CHECKER



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The big Clow Bulletin holds 450 pages of descriptions, illustrations, and prices on every modern plumbing appliance. Big index tabs show your thumb the sections—pronto.

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We hereby subscribe for the Clow Bulletin at the rate of 83 cents per month ($10.00 per year). Upon receipt of the Binder and Bulletin pages we agree to pay, at the monthly rate, the proper amount to carry our subscription until September 1st, and we further agree to pay thereafter the subscription price of this Service ($10.00) annually in advance.

And we further agree that the title of ownership to the Binder and Bulletin pages shall rest with James B. Clow & Sons and that upon our failure to renew our subscription at the end of any fiscal year (September 1st), or upon repayment to us by said James B. Clow & Sons at any time of the unearned portion of our subscription, we will surrender to said James B. Clow & Sons, or its authorized agent, the aforesaid Binder and Bulletin pages and this subscription shall be immediately terminated.

Nothing in this agreement shall obligate James B. Clow & Sons to publish or maintain the Clow Bulletin, the subject of this agreement, except that if the publication of the Clow Bulletin is discontinued after the receipt of our subscription, we shall be repaid the amount of the unearned portion of said subscription.

Name..... *Address*.....

Date..... 19..... *City*..... *State*.....

2nd: Includes repair parts and Ford service station larger repairs which we are unable to handle ourselves, 14c per day.

3rd: Alcohol, paint, grease and property damage 3c per day. I might say that our property damage has been so small that we have carried it ourselves for the past three or four years and made considerable saving over the insurance rate.

There are two or three ways in which this direct cost of operating the truck can be charged to the customer. One way is to make an hourly charge on all jobs where the truck is used. In other words the charge is so much an hour for a mechanic with an equipped service truck. Another way is to make a definite service charge for the trip regardless of how long the truck is on the job. Another way is to charge a higher hourly rate only for the time the mechanic is on the job. This rate must be high enough to absorb both the operating cost of the truck and the traveling time as well. We use the first method and have found it satisfactory.

Building Good Will

Now let us consider the equipped service truck as a good will builder and an advertising medium. No other one thing that we have done has been such a factor in building good will as the equipped service truck. The plumber has long been the laughing stock of would-be funny writers and comedians from the standpoint of having to go back to the shop for material and tools. The equipped service truck alone has brought out the old joke and figuratively speaking, in one blow knocked it down never to rise again. Let me quote an editorial which appeared in the Detroit News on February 22, 1930, which is directly to the point.

That Plumber Joke Makes British Plumber Moan

"British plumbers are complaining bitterly about the jokes levied at them. They say their profession has been brought into disrepute by funny people who have persistently alleged that a plumber always has to send for his tools. They moan that young men refuse to learn plumbing because of the disrespect the business has been brought into by the jesters. They see no humor in the situation, and they want the jokes to cease.

"The British plumbers might send a representative to the United States, to see how the American plumber abolished those jokes some time ago. For we had the same japes that are directed at the British plumber, and they got under the skin of the American pipe-fixer just as venomously as they are wounding his British brethren. But he didn't complain to the funny papers. He bought himself a light truck, and he put aboard it every tool and every piece of material that he thought he might have to use on any conceivable repair job. Then when he got a call, he hitched up the gas engine, dashed to the seat of trouble, surveyed the difficulty, got the proper tools out of the bus, fixed up the break, and was on the telephone asking where the next assignment might be, in less time than it took his father to pack his carpetbag.

"Let the British plumber modernize his affairs,

THE NEW ERA COMBINATION

ROUGHING-IN 12" AND 14"

NEW IN DESIGN—

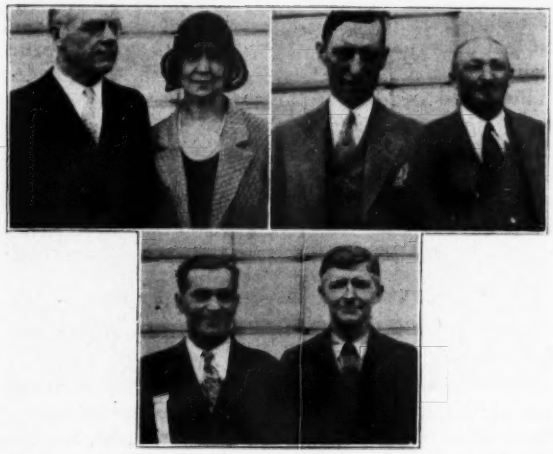
COMPETITIVELY PRICED

With the New Era Washdown, you can meet all competition. It has the advantage of being a washdown type but WITHOUT THE FRONT HUMP.

Display the New Era on your showroom floor. It will create sales interests resulting in profit for you, from people who are planning remodeling or new building.

Write for complete details

THE KEYSTONE POTTERY COMPANY
TRENTON, NEW JERSEY



Top row: Mr. and Mrs. C. R. Cooper of Denver, J. F. Peterson, organizer of United Association of Plumbers and Steam Fitters; Charles Larsen, Public Service Co. of Colorado. Bottom picture: G. A. Stocking and J. J. Laverty, both of Denver. Photos taken at the convention of the Colorado Society of Sanitary and Heating Engineers

and he will soon cease to feel the sharp shafts of wit piercing his hide."

The public is appreciative of this improved method of handling repair work. The business we do, the remarks and complimentary letters we receive and the fact that our complaints are only about 10% of what they used to be, all go to prove it.

As an advertising medium I do not believe we fully appreciate the value of the equipped service truck. Supposing we look at it from a dollar and cents standpoint. If you use a Ford AA panel body job with all necessary special work, and even allow $150 for stock and $50 for tools, you will have a total investment of approximately $1,250 when the truck is ready to go on the road. If you loaned that amount of money out at 6% interest you would receive $75 per year, so that from a purely advertising standpoint the truck is costing you $75 per year, plus the cost of keeping it in good condition, the same as you would a sign board.

For that much money in Detroit you could rent an unlighted sign board in a fairly good location for just one month—not a year.

And if we compare the value of such a sign board as against the value of an equipped service truck which has had the same amount of thought given it to produce results as did the sign board, there isn't any question about which is the better medium. Another thing, you can't place a sign board in front of a fine $50,000, $100,000 or $500,000 home on Boston Boulevard, Balmoral Drive or Lake Shore Drive, but your truck stops there, don't forget that.

As an Advertisement

The fact that the truck is moving is an advantage because it catches the eye. For that reason the rear end of the truck should be given as much consideration as the sides. If we could only look at these trucks as an advertising medium the same as we do our other advertising media, such as billboards, local magazines, and local newspapers, and forget them as a means of cartage or transportation, we would give more attention to its

Cut Service Costs

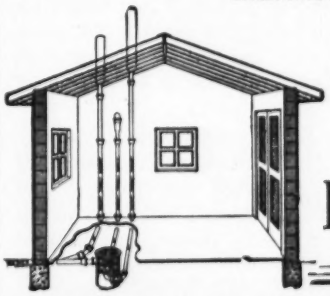
You can install so-called sanitary equipment or you can install Dehn positive protection — either will cost your customer the same but only Dehn positive protection will pay you a permanent profit which will never be eaten into by service calls.

The Dehn *PeerlesS* Garage System is one of the Dehn line of positive protection products. It gives the small garage the permanent security against dirt and polluted air that your customers want.

You have only to suggest Dehn protection to sell it. Write today for new catalog.

COMPOUND INJECTOR & SPECIALTY CO.

Established 1897



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THE QUALITY GOODS
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SUPER-TURBINE
PUMPS

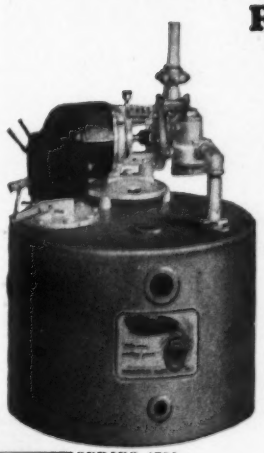
CONDENSATION RETURN UNITS

"High and Dry"

No need to subject your Condensation Pump to the dirt, grease, and water usually found in the boiler room sump or pit. Powerful suction, even when handling HOT water, enables the Burks Super-Turbine pump to perform effectively when mounted on TOP of the receiver tank.

Will Not Steam-bind

Only one moving part—the impeller. Pumps air alone to full pressure rating of the pump, hence will not steam-bind. Investigate this outstanding pump.



SERIES 4700

Send for Bulletin No. 91, which describes this new Condensation Return Unit fully. Write today.

DECATUR PUMP COMPANY DECATUR, ILLINOIS

appearance, its color scheme, and its general attractiveness. The wording and the layout of the wording together with style of lettering is an important thing, and a little extra thought on this subject will be more than repaid in greater returns from your trucks.

Some of the service trucks I have seen are a positive liability to the master. The paint is bad, they are dirty, the woodwork broken, the fenders either off or tied up with wire, the windshield broken, they show absolute abuse and neglect. Of course, people think if he runs his truck that way he probably runs his business that way too. The public is quick to note such things.

Further, do you suppose the people who live in those $50,000 or $500,000 homes want to see a dilapidated old relic of a wagon drive up in front of their home when they call for a plumber? No, and he's lucky if the butler doesn't sic the dog on him before he reaches the back door. No. do not forget, the advertising value of the truck is in direct proportion to the appeal it has to the public.

See to it that that appeal is positive. See to it that they are always clean. After they are one year old, paint and varnish them twice a year and always keep them in good repair. If you do this the public will compliment you because they notice.

Your trucks are easily the cheapest form of advertising you buy; however, you must do other advertising as well, and plenty of it. Advertise your trucks. Call the public's attention to them and you need not worry about having enough work to keep them going, because it will be there.

I have kept as closely as possible to the subject of the equipped service truck, but in closing, let me remind you that the equipped service truck is only one of many means to an end. That end is a successful plumbing and heating business. They are just one spoke in the wheel—do not neglect the others. See to it that your bookkeeping system will tell you the things you would like to know. Have a monthly audit made. Have a definite system of credits and collections. I cannot stress this too strongly. Study and apply merchandising methods to your business.

Discussion of Mr. Wigle's Paper

Following the reading of Mr. Wigle's paper, several questions were directed to Mr. Wigle.

The first question asked was: "What percentage in advertising can be used to keep the trucks busy?" Mr. Wigle: "Two per cent a year up to now, but this year business being off, we have stepped that up to three and one-half per cent."

The second question was: "Were customers willing to pay the service charge for operating the truck?" Mr. Wigle: "Since we started, nine years ago, the public appreciated this method to such an extent that I recently had occasion to check up how many plumbers are trying this method. I was very much surprised with just a rough survey to find that about 50% of the plumbers in Detroit have one or more of these equipped trucks which goes to prove that if the men in Detroit want to continue to do repair work, they must use the service truck."

Question: "How do you charge for the truck and journeyman?" Mr. Wigle: "We charge $2 an hour

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You are assured of a quick approval on your sprinkler job when you use Semler SURE-FIT Sprinkler Fittings. They are approved by the Underwriters' Laboratories. They undergo rigid tests before leaving our plant so that you are guaranteed performance and complete satisfaction.

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SEMLER
STEAM FLANGED SPRINKLER DRAINAGE

SEMLER COMPANY
JEANNETTE-PA.
SURE FIT FITTINGS

Top row: Mr. and Mrs. G. E. Rothenberger, Mr. and Mrs. Arthur Fries, all of Reading, Pa. Bottom row: Mrs. John Savadil and John Savadil of Milwaukee, Wis.; Miss E. C. Belitz, Sheboygan, Wis.; George D. Haines, Porcelain Tile Co., Chicago. Photos taken at Boston convention of the N. A. M. P.

for the journeyman and twenty-five cents an hour for the truck. This is the cost to operate the truck per hour. The customer is told that $2.25 an hour includes the journeyman and the truck."

Question: "Do you have specially trained men to operate the trucks?" Mr. Wigle: "For several years back we have had what we call the Journeymen's Club. For several years the men got together twice a month and at that time we went over the various problems they had in connection with doing jobbing work. We started primarily to show them the mechanical features of the various appliances, and we had men from different lines come in and give us ideas on selling, etc. In general it was an educational program all the way through. At the present time our men have their club. They meet once a week, at which time they combine shop talk and social affairs, which they put on and I might say they put on some very interesting entertainments. Just recently they put on a skit showing the old time plumber going to the job with the old carpet bag, etc., and it was very humorous and brought out all of the weak points in the old methods.

Question: "Do journeymen receive commission for material sold?" Mr. Wigle: "In a general way, no. We do have specific items on which we allow the men a definite sum of money when they participate in the sale. We allow the journeyman two dollars for every prospect for a water heater, whether he sells it himself or whether we follow it up from the office. From time to time we put on special items that we want to move and to stimulate the men to efforts in selling more material."

◆

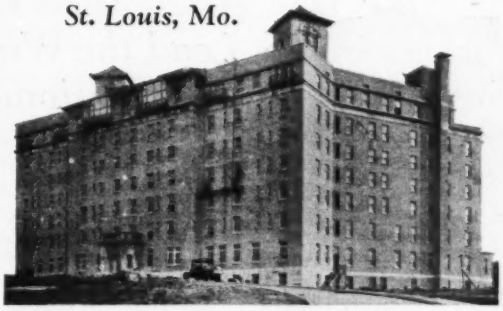
New England Golfers Play Commonwealth Country Club

The New England Heating Trades Golf Association held its June tournament at the Commonwealth Country Club, Brookline, Mass., on June 24. This date was chosen so that visitors to the convention of the National Association of Master Plumbers, which was being held in Boston at that time, could play in the tournament.

Following dinner, President Coll T. Flint intro-

Deaconess Hospital

St. Louis, Mo.



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Plumbing Jobbers: Crane Co.

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Insurance against cracking either nuts or bonnets is provided by using Lavigne Valves which are manufactured with forged tail-pipe nuts and bonnets.

They cannot crack.

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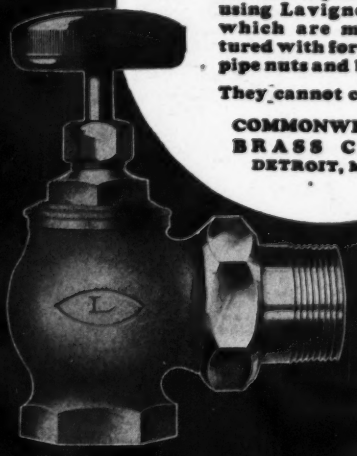
DETROIT, MICH.



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Standardize on Pennsylvania Range Boilers and watch your sales increase.

In Philadelphia for over 35 years.

Manufacturers of tanks of most every description on specification.

Ask your jobber to supply you.

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S. W. Cor. 24th and Washington Ave., Philadelphia

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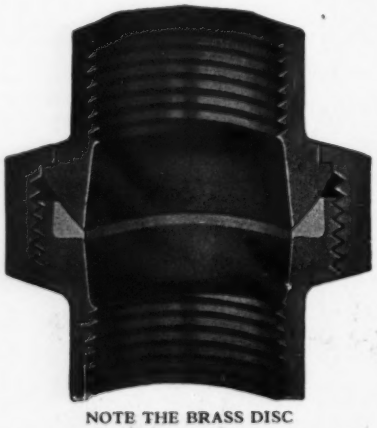

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Approved by Underwriters' Laboratories.

ILLINOIS MALLEABLE IRON CO.
Chicago, Ill.
Manufacturers Full Line Iron Pipe Fittings

duced Adam Walsh of New Haven, Conn., first assistant football coach at Yale University. Mr. Walsh, who played on the Notre Dame University team a few years ago, told something of his gridiron experiences.

Low gross for the day was won by A. T. Papineau, who shot an 82. First low net went to A. C. Bartlett, with a 65. Other prize winners were W. S. Cousins, Henry Lynch, Thomas O'Callaghan, George Elliott, W. S. Earle and John G. Ross. The guest prizes went to Harry Kimball and Joseph C. Fitts of New York City, secretary of the Heating and Piping Contractors National Association.

Following are the scores for the day:

	G.	H.	N.		G.	H.	N.
J. P. Dwyer, Jr..	109	33	76	W. S. Cousins...	90	24	66
T. O'Callaghan..	100	32	68	A. C. Bartlett...	83	18	65
C. W. Thomas...	126	..	..	J. G. Ross.....	85	13	72
Harry Kimball..	85	..	..	Jos. Cushing ...	102	..	..
Adam Walsh ...	103	..	..	W. Buchannan..	102	28	74
Phil. Smith	108	..	..	H. B. Buse.....	103	28	75
Coll Flint	87	14	73	L. J. Tierney...	112	38	74
Frank Gilmore..	114	28	86	Geo. O'Callaghan	125	..	..
J. J. Driscoll....	101	24	77	J. D. McLean...	112	26	86
A. J. Blackhall..	102	27	75	R. B. Williams..	127	..	..
H. E. Gibbey....	105	33	72	H. Klonower ...	88	14	74
W. S. Earle.....	89	18	71	G. F. Elliott....	90	20	70
J. J. Williams...	107	26	81	T. C. Scott.....	92	22	70
Henry Lynch ...	85	18	67	F. R. Ellis.....	94	..	..
A. T. Papineau..	82	15	67	G. H. Preggen..	104	22	82
C. C. Gray	110	..	..	J. T. Dwyer....	105	25	80
J. F. Hyde	90	..	..	E. G. Byrd.....	123	..	..
W. R. Illig.....	102	28	74	W. H. Oleson...	91	19	72
W. H. Hoyt.....	90	22	68	J. C. Fitts.....	146	..	..
A. E. Bastedo...	118	35	83	R. S. Franklin..	101	20	81
S. E. Nordbeck..	123	28	95	R. F. Campbell..	95	..	..
C. H. Blackwell.	93	12	81	E. F. Campbell..	112	..	..
B. C. Dwyer ...	100	27	73	J. F. Tuttle.....	88	14	74

Top picture: Reno master plumbers attending the convention of the California Association of Merchant Plumbers. Back row: V. McCormick, treasurer; C. C. Smith, F. C. Savage. Front row: C. W. Westover, William Harrigan, George E. Wilkinson, president, Len. C. Savage. Bottom row: Part of the Alameda County delegation. L. A. Bryant, N. J. Previati; Arthur Johnson, J. H. Jevons, D. W. Durant, B. T. Schullerts

Obituary

August Heil

August Heil, pioneer plumbing contractor of South St. Louis, Mo., and a charter member of the St. Louis Association of Master Plumbers, died in St. Louis in July as a result of an illness contracted shortly after his return home from the annual convention of the National Association of Master Plumbers, in Boston, Mass. He was in his seventy-first year. The funeral was held in St. Louis on July 16, with interment at Sunset Burial Park.

A native of South St. Louis, Mr. Heil entered the plumbing business forty-eight years ago and executed some of the larger contracts in the modern buildings in that section of the city. For many years he was prominent in sharpshooting tournaments in the middle west. He is survived by his widow, Mrs. Pauline Heil, three sons and one daughter.

Harry N. Heywood

Harry N. Heywood, president of The Samuel A. Esswein Heating and Plumbing Company, contracting firm of Columbus, Ohio, died on Monday, June 23, according to a formal announcement from the company.

John C. Weipert

John C. Weipert, master plumber of Baltimore, Md., was killed on June 24, when a wall collapsed and fell upon him while he was supervising the laying of drain pipes in a trench. Mr. Weipert was in his 38th year and had been engaged in the plumbing business for eight years. He is survived by a widow and three children.

Walter J. Warden

Walter J. Warden, vice president of the Warden & Leese Co., plumbing and heating contractors at 2450 Prospect avenue, S. E., Cleveland, O., died recently at his home on Lake Shore boulevard in Willoughby. Mr. Warden succumbed to a heart attack.

Mr. Warden had been in the plumbing and heating business for over forty years. He had been a director of the Cleveland Builders' Exchange. He was a member of the Cleveland Athletic club, the National Town & Country club and the Masonic order. The deceased is survived by his wife, two daughters, two brothers and three sisters.

Thomas F. Tobin

Thomas F. Tobin, who was engaged in the plumbing business at Milwaukee, Wis., until he moved to Waukegan, Ill., in 1918, died recently at his home in the latter city. Mr. Tobin, who was in his 60th year, was born in Milwaukee, and after graduating from St. John's Cathedral high school entered the plumbing business. He is survived by his wife and two sisters.

James J. Fitch

James J. Fitch, one of Baltimore's oldest plumbers, died at his home on June 18, in his 71st year. Mr. Fitch had been ill for the past two years. He started in the plumbing business at the age of twenty, and had been active until ill health forced him to retire two years ago.

He is survived by a widow, seven sons, two daughters,

Thousands *of* Drinks! Each One Clean *and* Sanitary

Hot days. Sweltering bodies. Parched throats. Throngs all day long taking their turn at public drinking fountains. In stations, hotels and other public places where drinks are numbered by the thousands daily, here the true superiority and battleship construction of the new Century Automatic Drinking Fountains are at once apparent.

The height of this stream varies only 1¼ inches up to 150 lbs water pressure
No sudden gushes of water
POSITIVELY SANITARY

Each turn of the handle produces a clear, full drinking stream. A clean, wholesome drink! A bubbler so constructed that no lips can touch it; that no water from the drinker's mouth can fall back on the source of the water. This is sanitation. And more amazing is the simple, all-brass construction of this unique invention that guarantees years of carefree service. Investigate these fountains fully. Learn why Chicago and other metropolitan health authorities are approving them and demanding this new standard of sanitation. The complete line of new Century Fountains is available in colors. Write today for detailed information.

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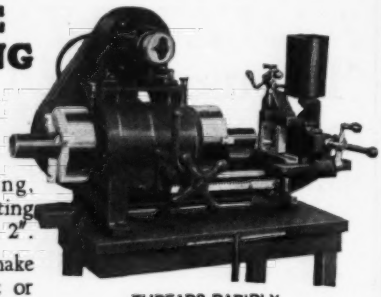
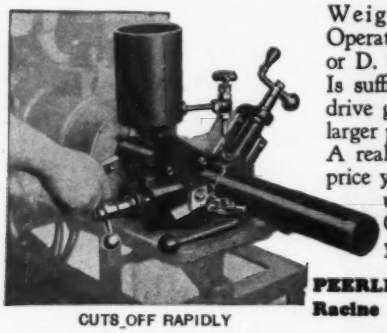
CUTS PIPE THREADING COSTS!

A full-fledged Portable Pipe Machine for Reaming, Chamfering, Threading and Cutting Off pipe from ⅛" to 2".

Uses any standard make of solid square right or left hand pipe or bolt dies.



THREADS RAPIDLY



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Weighs 250 pounds. Operates off either A. C. or D. C. lighting circuits. Is sufficiently powered to drive geared heads on the larger pipe, up to 6 inches. A real pipe machine at a price you can afford. Ask us about it today. Give us the name of your supply dealer.

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Pipe Threading Machines Production Precision
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SINK PLUG FITTING

Threads that really are easy to handle are one of the features of Trenton Brass Goods---but only one.

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427 N. Broad St.
Elizabeth, N. J.

twenty-five grandchildren and three great-grandchildren. All of his sons, except one, are engaged in the plumbing industry, and one of them, George J. Fitch, is chief plumbing inspector of Baltimore, Md.

Convention Dates

July 31-August 1, 1930—W. S. P. I.—The tenth annual convention of the Wisconsin Society of Plumbing Inspectors, to be held at the Hotel Witter, Wisconsin Rapids, Wis.

August 12, 13, 14 and 15, 1930—A. S. S. E.—The annual convention of the American Society of Sanitary Engineering, to be held at Winnipeg, Canada.

COMING TRADE EVENTS

July 30, 1930—The annual outing of the Washington (D. C.) Master Plumbers Association, to be held at Chapel Point, Md.

July 31, 1930—Annual picnic of Tri-City Plumbing and Heating Trade Development League, to be held at Credit Island, Davenport, Ia.

August 6, 1930—Michigan Trade Golf Association vs. Western Trade Golf Association, at Battle Creek, Mich.

August 7, 1930—The regular golf tournament of the Plumbing and Heating Club of Wisconsin, to be held at Waterford Woods, Waterford, Wis.

August 11, 1930—New England Heating Trades Golf Association. Regular tournament at Winchester Country Club, Winchester, Mass.

August 14, 1930—The annual outing of the New Bedford Master Plumbers' Association, to be held at Fort Phoenix, Fairhaven, Mass.

August 18, 1930—The sixth golf tournament of the Triangle Club of Pittsburgh, Pa., to be held at Stanton Heights Country Club.

August 20, 1930—The annual outing of the Bronx Master Plumbers' Association to be held at Karatsonyi's Glenwood Landing, L. I.

August 21, 1930—The annual outing of the Master Plumbers' Association of the State of Maryland, to be held at Cottage Grove, Md.

August 21, 1930—The fourth golf tournament of the Plumbing Contractors' Association of Chicago, to be held at Big Oaks Golf Club.

August 23, 1930—The annual outing of the Brooklyn Plumbing Supply Credit Association, to be held at Narragansett Inn, Lindenhurst, L. I.

August 26, 1930—Western Trade Golf Association. Regular tournament at Olympia Fields Country Club.

August 27, 1930—The annual outing of the Manhattan Association of Master Plumbers, to be held at Karatsonyi's, Glenwood Landing, L. I.

September 5, 1930—Western Trade Golf Association. Regular tournament at Glen Oak Country Club.

September 6, 1930—The annual outing of the Master Plumbers' Association of Jersey City, N. J., to be held at Blasberg's Farm, Hawthorne, N. J.

September 9, 1930—New England Heating Trades Golf Association. Regular tournament at Andover Country Club, Andover, Mass.

September 13, 1930—The annual outing of the Rhode Island State Master Plumbers' Association, to be held at Jim Smith's Inn, Warwick, R. I.

September 15, 1930—The seventh golf tournament of the Triangle Club of Pittsburgh, Pa., to be held at Shannopin Country Club.

September 18, 1930—The fifth golf tournament of the Plumbing Contractors' Association of Chicago, to be held at Oak Hills Golf Club, Palos Park, Ill.

September 18, 1930—Michigan Trade Golf Association. Regular tournament at Meadowbrook Golf and Country Club. "Ladies' Day."

October 3, 1930—Western Trade Golf Association. Final tournament of year at Calumet Country Club.

October 7, 1930—New England Heating Trades Golf Association. Regular tournament at Sandy Burr Country Club, Wayland, Mass.

October 9, 1930—The sixth golf tournament of the Plumbing Contractors' Association of Chicago, to be held at Tam O'Shanter Golf Club.

October 14, 1930—The eighth golf tournament of the Triangle Club of Pittsburgh, Pa., to be held at Edgewood Country Club.

November 18, 1930—New England Heating Trades Golf Association. Regular tournament at Unicorn Country Club, Stoneham, Mass.

MARKETS

BUSINESS REPORTS FROM LARGE JOBBING CENTERS

Continued Improvement Is Noted In Some Centers

THE VOLUME of plumbing and heating materials moving into consumption is reported to have shown moderate gains in some sections of the country during the fortnight since our last review. On the whole, however, the market is characterized by a tendency to conservative buying, according to manufacturers' representatives and jobbers interviewed during the past two weeks. Producers are keeping their production schedules adjusted to the tone reflected in the current demand but are also maintaining their stocks at good working levels. Wholesalers, it is said, in some cases, are purchasing a bit more freely, keeping their inventories at satisfactory working quantities.

One manufacturer of pottery announced a reduction in the price of lavatories, effective July 18.

May shipments of oil burners, as reported by 50 manufacturers whose output constituted 60 percent of the total for the industry in 1927, according to the department of commerce, amounted to 5,901 as compared with 3,923 in April and 4,474 a year ago.—New orders for 1,280 steel boilers were placed in May, as reported to the department of commerce by 81 manufacturers, comprising most of the leading firms in the industry, as compared with 1,017 in April and 1,751 in May, 1929.—Production of range boilers in May, as reported to the department of commerce by 13 manufacturers, having a daily productive capacity of 6,900 boilers, the value of whose output constituted approximately 80 percent of the total of the industry, was 43,661 as compared with 50,749 in April. The annual production of these concerns was 714,996 boilers in 1929, as compared with 711,805 in 1928 and 795,508 in 1927.

New York

Moderate Improvement Noted

IN the opinion of many wholesalers interviewed, business during the past fortnight in this territory has shown an improving trend after allowing for the usual seasonal lull at this time of year. In the outlying areas the improvement is somewhat more marked than in the city itself.

While credit conditions are fundamentally better than they have been for two years, according to some interests, collections of some old balances are not progressing as satisfactorily as they did earlier in the year. Sentiment has been somewhat improved by the greater ease in money available for mortgages and for new building, however.

Export business has shown a perceptible gain in the past fortnight, according to several local houses interviewed, and comparisons with the same period a year ago are becoming more favorable on a relative basis.

Recent revisions in prices on certain types of material have not stimulated buying except in cases where wholesalers had actual requirements, according to several manufacturers interviewed. Inventories on most items with wholesalers are reported to be at low levels and, in general, it may be stated that any appreciable gain in new construction would speedily be reflected in demands on manufacturing plants.

One large manufacturer of pottery announced a reduction in the price of lavatories on July 18.

Contracts awarded for new construction of all types in the Metropolitan area of New York during the period from July 1 through July 11 totaled $19,241,100. This was at the rate of $2,137,900 per business day. For the month of July, 1929, the daily rate of contract-letting was $6,835,400. For the year to date building and engineering awards in this territory amounted to $531,743,900, compared with $645,411,300 for the corresponding period of 1929.

The contract record for the first period in July comprised the following: Non-residential buildings, $10,803,300; residential buildings, $6,198,800; and public works and utilities, $2,239,000. Non-residential buildings were divided as follows: Commercial buildings, $4,655,600; educational buildings, $2,321,400; hospitals and institutions, $1,715,100; industrial buildings, $765,600; public buildings, $697,900; religious and memorial buildings, $424,300; and social and recreational buildings, $223,400.

Soil Pipe

Inquiry among wholesalers is reported to be light by most manufacturers interviewed, although quotations for a few cars are being made with increased frequency. Material is moving steadily to operations now under way but aside from some municipal projects, very few new jobs are being figured. Prices are being firmly maintained by all interests and inventories are at a low level among both

wholesalers and manufacturers. Requirements are filled promptly at all points of distribution.

Pipe—Brass, Steel and Wrought Iron

According to representative manufacturers interviewed, the volume of steel pipe moving continues without much change and a relatively large proportion is moving for replacement in industrial plants. Prices remain unchanged from the time of our last report and no difficulties are experienced in obtaining material promptly. Inventories are considered lower than normal at many points of distribution and demand for replacement and renovation work is holding up relatively well in this commodity.

Fittings

While some increase in contractors' requirements have been reported in the suburban areas during the past fortnight, the volume moving is reported by several wholesalers as being considerably below that of a year ago at this time. Such requirements as there are are attributed largely to replacements. There has been no change in prices reported on any type of fitting since the time of our last report. Steel pipe nipples remain on the advanced basis mentioned in our last report. No delays are experienced in obtaining material of any type.

Enameled Ware

Manufacturers interviewed report that shipments which had been running somewhat heavily the early part of the month, have tapered to a certain extent during the past fortnight. Contractor demand is reported to be at about the same level which has prevailed over the past sixty days, although some quickening of interest is reported in outlying sections for colored ware on the part of consumers. Inventories of wholesalers are of normal proportions according to most reports, while stocks on hand at plants are at fair working levels. The current price level is being firmly maintained by wholesalers and manufacturers alike.

Pottery

One large manufacturer announced a reduction in the price of lavatories, effective July 18. Contractor demand is reported as being below that of a year ago at this time notwithstanding the continuance of replacement and renovation work calling for special items which have shown an increasingly large proportion of the total turnover so far this year.

Plumbers' Brass Goods

Wholesalers report that their buying has been confined for the most part to immediate requirements as contractor demand has been light aside from some requirements for replacements. The sales on cast brass continue to be relatively more favorable than the volume for tubular goods, especially in the city proper. Prices remain well stabilized among wholesalers and manufacturers at current levels. Production of both divisions of brass goods has been closely geared to demand and in some instances slight delays are experienced in the receipt of material, according to wholesalers.

Range Boilers

The shipments of range boilers continue at approximately the same rate as has prevailed during the earlier part of the year, according to several manufacturers interviewed. Replacement demand is responsible for a large proportion of the material being moved, in the opinion of wholesalers. Inventories at plants and at distributing points are at fair working levels, according to reports, and manufacturers are producing at a rate commensurate with wholesalers' requirements, and wholesalers in turn are buying only for near-at-hand deliveries. Prices are being firmly maintained by all interests and no delays are experienced in the receipt of material.

Boilers and Radiators

Demand is characterized as being seasonally light at this time and it is reported that repair work is accounting for the bulk of contractors' requirements. Wholesalers' purchases are predicated mainly on the current requirements of their customers and little tendency is evidenced of their building inventories at this time. No delays are experienced in obtaining staple items from plants or wholesalers and no changes in prices have been reported since the time of our last report.

CENTRAL WEST

Volume Is Fair

WITH new building operations moving at a fair pace and modernization work creating an additional demand for plumbing and heating materials, business in the Central West section may be said to be pursuing an orderly but conservative course, with a healthier condition slowly becoming apparent.

Wholesalers are generally keeping their stocks at good working levels in an effort to meet the needs of master plumbers and heating contractors. Producers' stocks are being kept well ahead of the demand, in order to facilitate prompt handling of all jobber commitments. Makers, however, have limited their production schedules to a scale in keeping with the anticipated requirements of the trade.

On July 18 one large pottery manufacturer announced downward revisions in his prices to distributors on lavatories. No other price changes were announced during the period since our last review.

Soil Pipe

Soil pipe makers' salesmen in this territory report that tonnages of pipe moving into consumption are somewhat less than for the same period of a year ago, but on the whole have kept up to a fair seasonal level. Jobbers' inventories are at comparatively low levels, but are ample to take care of the contractor demand in most all cases without delay. Manufacturers are able to fill all jobber commitments in good time. Published price sheets are described as firm and unchanged.

Pipe—Steel and Wrought Iron

Both steel and wrought iron pipe tonnages showed a slight change for the better during the past two weeks, according to representative interests interviewed. However, the demand for both types of pipe is characterized as being only fair and below the same period for 1929. No price changes have been reported since the time of our last review. Makers are giving prompt shipment from manufacturing sources.

Fittings

No unusual developments in contractor demand have arisen for fittings commodities during the past fortnight, according to jobbers' representatives interviewed. Remodeling and replacement work, along with the small but steady requirements going into new work, have combined to keep the fittings market on about the same level of previous weeks. Manufacturers are keeping sufficient stocks on hand to supply jobbers with most all items without delay. Price sheets have undergone no revision during the past fortnight.

Enameled Ware

Manufacturers' representatives report only moderate sized orders as being received from wholesalers in this territory, most jobbers buying for near-at-hand requirements only and keeping their stocks well-assorted but comparatively small. Contractor demand is said to be constituted to a

marked degree of requirements for modernization and replacement work. No changes in makers' quotations to jobbers have been announced during the past two weeks. Shipments are prompt in most all cases.

Pottery

At least one large manufacturer announced a reduction in the price of lavatories, effective July 18. Contractor demand for pottery items has been reported as being relatively light during the last fortnight, but still compares favorably with the level of demand reached during the past sixty days. Jobbers have been keeping their inventories adjusted to the nature of contractor requirements in pottery, just as in most other commodities. Orders are given prompt attention at producing sources.

Plumbers' Brass Goods

Both manufacturers and wholesalers report this market as lacking in the seasonal stimulus usual at this time of year. Contractor requirements, which have been for the past two or three months bolstered up by replacement and remodeling work, have slackened off a bit, according to some jobbers' representatives interviewed since our last published review. Wholesalers generally are holding their inventories to the lowest working minimums without impairing their ability to fill master plumbers' orders. Price sheets are unaltered and makers are able to grant fairly quick shipment on nearly all items.

Range Boilers

Both wholesaler and manufacturer interests report the movement into consumption of this commodity to be at about the same level established during the last sixty days, which has been only fair. As a whole, jobbers' stocks are said to be of good working quantity, and deliveries from sources are quickly executed in most all instances. Prices remain unchanged from the time of our last report, and quotations of wholesalers are firm.

Boilers and Radiators

Shipments of round and square boilers for April are shown to be slightly under the amount for May, according to a report from the department of commerce. Shipments of round boilers in thousands of pounds amounted to 5,853 for April as against 5,898 for May and 9,682 for May 1929. Concerning square boilers, the report shows that shipments, in thousands of pounds, for April were 9,433 and for May, 11,249, while for May, 1929, they amounted to 14,946. Shipments of radiators, in thousands of square feet of heating surface, were 4,259 in April and 5,047 in May. In May 1929, the figure was 7,900.

MIDDLE ATLANTIC

Business Tone Better

THE first weeks of July have produced an increased amount of activity to the plumbing and heating business in this section according to reports, emanating from jobbers and manufacturers' salesmen. Wholesalers say that their contractors show an increasing tendency to buy materials through the medium of their inquiries and in many cases sales made thus far in July have been in excess of June totals for a similar period. Orders received by makers' representatives are generally small but more numerous in many cases than in recent weeks. Finishing materials apparently are in greater demand among the trade than the roughing materials.

Producers' stocks are keeping ahead of the demand and materials can be procured in good time from all sources. One large manufacturer of pottery announced a reduction in the price of lavatories, effective July 18. The scope of residential building is small, but some building of the better type is in evidence and requires the better class of plumbing and heating goods.

F. W. Dodge Corporation reports a total valuation of $15,549,300 in building contracts awarded in the Middle Atlantic section for the 25th week from June 21st to 30th. Of the total $6,853,900 went to commercial building and $6,014,500 to public works and utilities. For the 26th week, a total of $19,312,600 in contracts was awarded, of which $9,466,300 was for commercial construction, and $5,366,000 for public works and utilities.

Soil Pipe

While a slightly greater interest was displayed by master plumbers for soil pipe during the fortnight, pipe tonnages are still falling behind last year's figures. June produced a betterment over May and the upturn is holding about even during the present activities. Close buying is the prevalent method as dealers only buy as contractor requirements warrant. Foundries have curtailed production to meet present requirements but are sufficiently stocked to make quick deliveries. Prices are firm.

Pipe—Brass, Steel and Wrought Iron

Demand for these commodities is characterized as only fair for this season and about holding even with the last bi-weekly period. Brass pipe is evidently suffering from the lack of residential building in any sizable volume and the recent price drops in raw copper have made wholesalers wary about purchasing any quantity of brass-pipe. Wrought iron and steel pipe prices are firm but producers' salesmen report that no appreciable gain in their sales has taken place, and that volumes thus far in July are approximately the same as last month. Jobbers are buying these types only for fill-in purposes and commitments as a rule are small.

Fittings

A steady pace is maintained in the demand for fittings, it is reported. Aggregate volumes are not reaching the proportions of other years, however, the decline having affected all types about the same. Manufacturers are able to make shipments in a capable manner as their stocks are fairly sizable. Dealers buy only to fill in depleted inventories or as the demand warrants, their stocks as a whole are small. Prices remain the same.

Enameled Ware

Contractors' calls for enameled ware were slightly increased during the fortnight, but the recent drop in enameled ware prices has not tended toward large increases in purchases on the part of wholesalers, it is reported. Some stimulation was witnessed but the lack of building projects requiring finishing materials has somewhat curtailed this. Prices remain unaltered since the last change, and prompt fulfillment of orders is enjoyed by jobbers.

Pottery

Pottery orders took a moderate boost during the last report period, many operations of the larger type having reached the finishing stage and requiring fixtures, according to sources interviewed. Residential projects being slack, the usual volumes of staple fixtures are not consumed and consequently, dealers are not stocking these fixtures beyond their immediate requirements. A reduction in the price of lavatories was announced on July 18 by one large manufacturer. Deliveries from potteries are quickly executed.

Plumbers' Brass Goods

Plumbers' brass goods appear to be enjoying a fairly good demand at the

present writing, according to sources of information. Since the first of July, remodeling is consuming a goodly portion of cast and tubular goods, but some new work is also demanding considerable material, when other periods of the year are considered. Prices are firm and deliveries are prompt. Jobbers are able to take care of orders in good time.

Range Boilers

Few large orders for range boilers are received by manufacturers, but an upward trend in consumption has been reported during the past two weeks. Prices are firm and deliveries are promptly made.

Boilers and Radiators

The recent price revision on June 9 of boilers and radiators stimulated a fairly sizable amount of business recently. Makers report that since the first of the present month, heating contractors are requiring these items at a greater pace than heretofore since January 1. Optimism is the rule with makers and dealers in so far as heating materials are concerned. Prices are unchanged and shipments are being made promptly.

NEW ENGLAND

Shipments Are Improved

WHOLESALERS of plumbing and heating materials noted some step-up in their dispositions to contractors during the several foregoing weeks. Consumption requirements in many of the larger centers throughout the New England states seem to have gained momentum in that forwardings of various commodities from local warehouses of jobbers have increased in larger proportion during the past fortnight than in any other similar period of the year thus far. While there is still considerable room for expansion in the building program, there is becoming more apparent a volition on the part of sponsors of outstanding developments to let contracts to master plumbers which up to the present had been held back. Construction reports indicate increases in the number of major projects contemplated.

There seems to be a better sentiment displayed among manufacturers of most commodities, for wholesalers have been ordering somewhat more frequently for stock rehabilitation purposes. The latter are well equipped for their present needs and evince little disposition to augment their present holdings. Makers' representatives report but few large size orders, but their day to day receipts aggregate fairly good seasonal volumes. There is no difficulty experienced by distributors in procuring shipments of materials from sources when needed.

Soil Pipe

Improvement in wholesalers' dispositions of soil pipe is neither radical nor laggard, it is said, for master plumbers' orders have indicated fairly good consumption demand and consequently have granted this market a more steady degree of activity than has been experienced for some months. Several foundry representatives report a betterment in their receipts of carload business and the replacement commitments of wholesalers help to increase the tonnage for this territory. The majority of jobbers are sufficiently supplied for the present and are able to maintain even balances of

The Stock Market

Range for Week Ending July 19, 1930†

Par Value	1930 High	1930 Low		*	Weekly High	Weekly Low	Weekly Close
NP	156⅜	103¼	Air Reduction Sales Co	A	121⅜	112	115⅞
NP	39¾	23⅜	American Rad. & Stand. San. Corp	A	27	25⅛	26⅜
25	100⅞	48	American Rolling Mills Co	A	61½	53⅛	60
50	81½	44½	Anaconda Copper Mining Co	A	52½	48⅛	50
NP	46½	30	Bastian-Blessing Co	C	36	31¾	35
NP	110¼	75¾	Bethlehem Steel Co., com	A	86	82½	84½
100	134	122¼	Bethlehem Steel Co., pfd	A	125¾	124¼	125¾
NP	30⅝	13⅛	Brunswick-Balke-Collender Co	A	19¼	14⅝	19⅛
NP	112⅝	66⅛	A. M. Byers Co., com	A & E	80⅝	73	76½
100	114	109	A. M. Byers Co., pfd	A & E	109	109	109
100	127½	118	Century Electric Co., com	F	118	118	118
50	4¾	1	Chicago Nipple Mfg. Co., "A"	B	2¼	1	1
50	1½	1	Chicago Nipple Mfg. Co., "B"	B	1	1	1
25	45	42	Crane Co., com	C	43	42	42
100	119½	113	Crane Co., pfd	C	115	114	115
20	21	9½	Eagle-Picher Lead Co	H	10	9½	9¾
NP	39¾	7	Fairbanks Co., pfd	A	11	8⅝	8⅝
NP	50½	34¼	Fairbanks, Morse & Co., com	A	40	37½	39
100	111	102	Fairbanks, Morse & Co., pfd	A	108½	108½	108½
NP	20	10⅛	Greenfield Tap & Die Corp	B	13	10⅛	12
NP	27⅝	21½	Iron Fireman Mfg Co	C	28	26¼	27
NP	148⅜	70	Johns-Manville Corp., com	A	86⅜	75	82¼
100	123	118¼	Johns-Manville Corp., pfd	A	121½	120¼	121½
100	123½	118½	Jones & Laughlin, pfd	A & E	122	121	122
NP	76¾	50	Minneapolis-Honeywell Reg. Co., com	A	55	55	55
NP.	73	47	Modine Mfg. Co	B & C	52½	50¼	50½
NP	34	21	Motor Wheel Corp	A	25⅜	20⅜	25
NP	49½	35⅜	F. E. Myers & Bro. Co., com	A	40	37¼	40
100	105	101½	F. E. Myers & Bro. Co., pfd	G	104¾	104¾	104¾
100	189½	125	National Lead Co., com	A	135½	134¾	135
100	143	138⅛	National Lead Co., pfd. "A"	A	140⅛	140	140
100	119½	116	National Lead Co., pfd. "B"	A	118¼	118	118
NP	4½	1¾	National Radiator Corp., com	A	2	2	2
NP	1¼	¾	National Radiator Corp., pfd	A	1	1	1
5	31⅜	21½	Herman Nelson Corp	B	22	22	22
NP	76	65½	Ohio Brass Co., "B"	B & G	65½	65½	65½
NP	30	19	Revere Copper & Brass, Inc., com	A	19⅜	19	19¼
NP	72	58¼	Revere Copper & Brass, Inc., pfd. "A"	A	58¼	58¼	58¼
NP	3	1¼	Richmond Radiator Co., com	B	1¼	1¼	1¼
NP	12	5	Richmond Radiator Co., pfd	B	5½	5⅛	5½
NP	44	27	Ruud Mfg. Co	C	31	27	27
NP	37¾	19⅞	Spang, Chalfant & Co., com	A	33⅞	32⅛	33⅞
100	96	92	Spang, Chalfant & Co., pfd	A	94	94	94
NP	32½	22¼	Time-O-Stat Controls Co., "A"	C	24½	23½	24½
NP	106⅞	60¼	Union Carbide & Carbon Corp	A	74⅞	70¼	74
20	38¼	18½	U. S. Cast Iron P. & F. Co., com	A	35¼	31⅞	34½
NP	21	15⅝	U. S. Cast Iron P. & F. Co., 1st pfd	A	18⅞	18⅞	18⅞
NP	21¼	18½	U. S. Cast Iron P. & F. Co., 2nd pfd	A	21⅛	21⅛	21⅛
NP	55	41	U. S. Radiator Corp., com	B & D	41	41	41
100	100	100	U. S. Radiator Corp., pfd	D	100	100	100
NP	35	20	U. S. Rubber Co., com	A	25⅜	21¼	24½
100	63⅞	41¼	U. S. Rubber Co., pfd	A	47⅜	44¼	47
100	198¾	151⅜	U. S. Steel Corp., com	A	167¾	160¾	166¾
100	146	141	U. S. Steel Corp., pfd	A	146	145⅜	145½
NP	9	2¾	Universal Pipe & Radiator Co	A	5¼	4¼	5
NP	43⅝	21½	Walworth Co	A	25⅞	23⅞	25½
NP	14	9	Wayne Co., com	B & C	14	14	14
NP	38	25	Wayne Co., pfd	B & C	32	32	32
100	110	93	Wheeling Steel Corp., com	B	110	108	110
100	135½	131½	Wheeling Steel Corp., pfd. "A"	B	133	133	133
NP	29⅜	16	Williams Oil-O-Matic Htg. Corp	C	16	16	16
NP	150¼	108	Youngstown Sheet & Tube Co	A	115	115	115

*Where listed—
A—New York Stock Exchange
B—New York Curb Exchange
C—Chicago Stock Exchange
D—Detroit Stock Exchange
E—Pittsburgh Stock Exchange
F—St. Louis Stock Exchange
G—Cleveland Stock Exchange
H—Cincinnati Stock Exchange

†If there is no trading during the current week, range represents last week recorded.

stocks through quick delivery service from foundries. Makers' prices have not been changed. New England distributors effected a slight upward revision in their quotations to plumbing contractors during the past week.

Pipe—Brass, Steel and Wrought Iron

Movements of these commodities from manufacturing points into wholesalers' warehouses are of somewhat better volume than heretofore. There is apparent an increase in contractors' needs, which, though not of large proportion, necessitates frequent replacements by distributors. Steel pipe shipments, while somewhat below the seasonal mark, approach a degree of steadiness. Wrought iron pipe consumption has also shown some improvement over preceding weeks. Producers of brass pipe state their receipts, even though not of voluminous nature, are becoming more frequent. Mills are in position to forward without delay. No price changes have been reported by makers.

Fittings

Demand for cast and malleable iron fittings continues at practically the same level which has obtained during former weeks, with some quickening noted by wholesalers in various sections. Manufacturers' salesmen are not booking orders of any appreciable size but are competing keenly to procure the frequent small size replacement commitments of wholesalers. As a rule, the latter have sufficient assortments to supply amply their trade's existing needs. No price revisions have been announced by makers. Deliveries from sources are being executed in a prompt manner.

Enameled Ware

It is noted that most jobbers have accumulated fairly good stocks following recent price reductions by manufacturers. Consumption of enameled ware has been slowly but steadily increasing but not in manner which producers and wholesalers expected that would follow the lowering of price levels. It is true that there is more activity in the inception of some of the larger operations which had been dormant, but there is still extant, however, an appreciable volume of potential building, which is promised, of commencement during this year but which does not largely promote present business for producers and jobbers. Deliveries from sources are sufficiently prompt as to warrant good assortments at local distributing points. Makers' prices are unchanged.

Pottery

There is still considerable estimating being done on prospective developments being turned out of architects' offices, but actual contract awards involving pottery are not of appreciable volume. Potters' shipments consist mainly of small lot quantities for rehabilitation of wholesalers' stocks and scattering of special pieces for specific major operations. The lack of ordinary residential work is accountable for inactivity in this market. Potteries are making satisfactory deliveries of staple items on dates requested.

Plumbers' Brass Goods

Manufacturers' salesmen report but little step-up in their receipts from distributors. The latter, in view of spasmodic demand from their trade, are satisfied to keep well assorted inventories but are not keen on maintaining large quantities of any item. Their method of ordering is still of replacement rather than bolstering nature. Factory reserves are being sustained at levels which warrant quick deliveries when called for. Makers' prices have undergone no revisions.

Range Boilers

Allied commodities, including copper range boilers, storage systems, large size boilers, pneumatic tanks and septic tanks combine to give producers volumes which are of fairly good dimension for this period of the year. Galvanized range boilers are moving from wholesalers' warehouses mostly into renovating work, for there are not many new projects at present which call for installations of this commodity. Jobbers are not obliged to carry large stocks, for demand from their trade does not necessitate this, and makers, furthermore, are able to fill quickly any gaps which might appear in distributors' inventories. Producers quotations are firm and have not been changed.

Boilers and Radiators

Both manufacturers and distributors report that they have ample stocks on hand to grant quick delivery service to their trade. Consumption of all heating material is not particularly brisk, which fact is attested by wholesalers' shortcomings of receipts which, in former years during this period, they would not usually experience. There is outstanding, however, a good potential volume of boiler and radiator business which producers anticipate will materialize within the next several months. Makers' prices are firm and unchanged.

SOUTHEAST

Volume Is Moderate

THE plumbing and heating sales volume was relatively light for the past two weeks, it was reported, and this situation was well distributed over the territory. The heating lines have been affected by the extremely warm weather which is prevailing here and construction interests are postponing their heating contracts in repair and reinstallation work. Construction work continues to show improvement and most observers are of the opinion that the plumbing and heating lines shortly will see an improvement.

The credit situation has shown considerable improvement, it was said, and jobbers are on the alert to keep the situation well in hand.

Especial attention is being paid repair and reinstallation work and in modernizing present heating and plumbing systems. Contractors and salesmen are exerting every effort toward this type of work, it was said.

Jobbers generally, have good working stocks on hand and no delays have been reported in securing materials as needed.

Soil Pipe

Soil pipe inventories were reported at a minimum level and jobbers are reluctant to place large factory commitments. They depend upon the quick shipping facilities of the makers to supply immediate needs of the trade. Soil pipe sales did not reach any sizable proportions for the past fortnight and most jobbers report business as only fair. No change in prices occurred and deliveries are promptly made.

Pipe—Brass, Steel and Wrought Iron

A slight improvement was made in pipe sales since our last report and wholesalers interviewed state that contractor demand showed a small gain. Steel and wrought iron continued to move at a fair rate, but brass pipe sales were moderate. Stock replacements, though in small quantities, indicated that jobbers were optimistic about near future business in brass, steel and wrought iron pipe. Prices remained firm at the published sheets, and deliveries were made on schedule time.

Fittings

The fittings market showed little improvement over the preceding two-

week period and sales were reported to be moderately good. Brass fittings demand was only fair while sales in malleable fittings continued at the same moderate rate announced in our previous review. Jobbers have a good assortment of fittings in stock to take care of the immediate needs of the trade. Prices remained unchanged and factory shipments are regular, in most cases.

Enameled Ware

Jobbers have anticipated their requirements for enameled ware and hence factory commitments were reported light for the past fortnight. There is no large volume of construction work ready for finishing and thus the larger portion of enameled ware sales were for repair and reinstallation work. Prices are holding firm at the published sheets and no delays have been reported in shipping. Jobbers have ample ware on hand to take care of the near future needs of the trade.

Pottery

Master plumber requirements continue to be for small quantities of pottery and the demand, which has been light for several weeks, did not show signs of improvement in the past ten days. Wholesalers have reduced their stocks to the minimum and are ordering from factory just when the need arises. Shipment are made promptly.

Plumbers' Brass Goods

Wholesalers and manufacturers' representatives interviewed stated that this market is holding its own and that sales in both tubular and cast brass goods have been moderately good. A fairly good seasonal demand is apparent on the part of heating and plumbing contractors, and jobbers are keeping their stocks of sufficient size and assortment to care for the slightly increased demand. No price change has been made and deliveries are made on schedule.

The Metal Market

	July 22	Average May, 1930	Average March, 1930	Average 1929
PIG IRON—				
No. 2 foundry, Chicago	$18.00	$19.00	$19.50	$20.00
PLATES AND SHEETS—				
Steel boiler plates, Pittsburgh, per lb.	1.65c	1.75c	1.85c	1.93c
Blue annealed sheets, No. 13, Pittsburgh, per lb.	2.15c	2.15c	2.25c	2.17c
Black sheets, No. 24, Pittsburgh, per lb.	2.45c	2.55c	2.65c	2.85c
Galvanized sheets, No. 24, Pittsburgh, per lb.	3.10c	3.25c	3.30c	3.57c
TIN—				
Straits tin	30¼c			
LEAD—				
Chicago	5.50c			

The Old Metal Market
Dealers' Buying Prices

	Per lb.		Per lb.
Aluminum clippings	13½c	Copper, light	7½c
Block, tin	26 c	Copper, uncrucibled wire	11 c
Brass, light	4 c	Faucets and valves	7½c
Brass, heavy mixed	7 c	Lead, heavy	4¼c
Brass, red	7½c	Solder Joints	7½c
Copper, crucible	9½c		

NOTE: Prices are those quoted on Tuesday of this week.

Range Boilers

At this time range boiler movement is very light and some sources say that at the present rate, sales will show a smaller volume over June. However, several inquiries regarding future delivery orders, have been received which should bring about some optimism, it was said. Jobbers have small but ample stocks to care for the demands of the contractors. Prices are steady and shipments are made quickly.

Boilers and Radiators

Wholesalers report that contractor demand continues light and that this is due largely to the warm weather which is prevailing in the Southeast and to the fact that construction work on some of the larger projects has not yet reached the installation stage. However, considerable attention is being paid inventories and several jobbers are reported to be increasing their factory commitments in anticipation of early increased demand. No price change has been announced.

PACIFIC COAST

Demand Is Moderate

LITTLE change was noted in Coast business during the past fortnight. Activity in the different lines of plumbing and heating material was reported by most jobbers to be moderately good, and holding at a rather fair seasonal level, however the demand may be said to be better in some sections than in others. Distributors are carrying ample stocks of all merchandise which enables the trade to secure prompt delivery of all its needs when required.

Soil Pipe

The seasonal decline in the demand for this commodity was noticeable in this area during the past fortnight. Demand, while light, is up to expectations if compared with the same period of last month. Stocks in distributors' hands are ample, with no tendency on the part of manufacturers or wholesalers to carry greater stocks than the immediate demand might warrant.

Pipe—Steel and Wrought Iron

Nothing new has developed in both the steel and wrought iron market since our last report. These commodities continue to move in a moderate quantity with the trade purchasing for current needs only, it is reported.

Fittings

There was no new development in the call for cast iron, screwed, malleable and drainage fittings during the past two weeks, at least as far as volume of business is concerned. The demand continues to move in a moderate volume with the trade purchasing only in quantities sufficient for their current needs.

Enameled Ware

A seasonal slump has occurred in the enameled ware market keeping in line with the decline in other finishing materials. There are very few inquiries out for future requirements and the trade continues to purchase for immediate requirements.

Pottery

A decline in the demand for pottery in this market is reported, and jobbers are carrying stocks consistent with the trade's present needs. Coast manufacturing plants are in a position to tender immediate shipment on all orders received.

Plumbers' Brass Goods

Although manufacturers declare that this commodity is not at the level maintained for the same period of last year, plumbers' brass continues to lead all other commodities in this area as far as volume is concerned. Alteration work has helped considerably to stimulate this market.

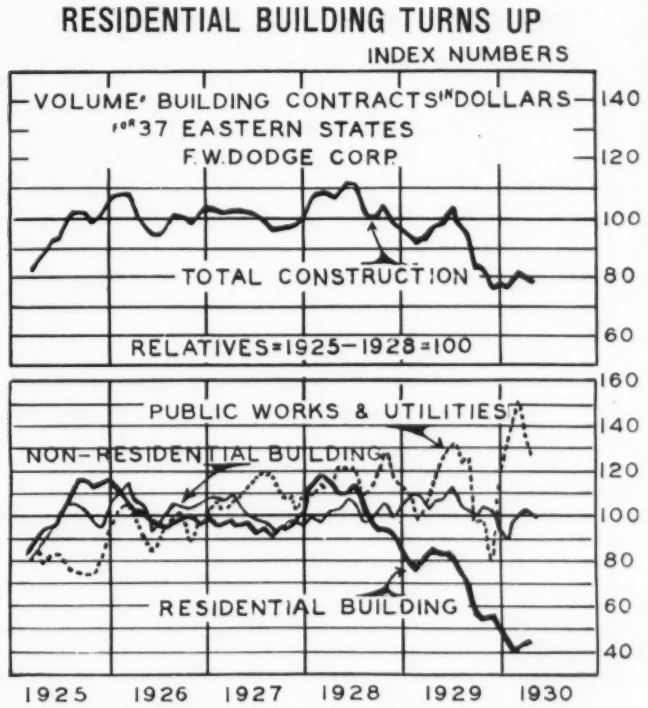
Home Building Makes Better Showing

By THOMAS S. HOLDEN

Vice President, F. W. Dodge Corp.

COMPARED with the customary seasonal decline, residential building contracts have made better progress in recent months than either nonresidential building contracts or public works and utilities. In terms of actual volume, residential work is proceeding at a very low rate, relatively lower than either of these other classes. But in its capacity as forward indicator of general business revival the modest improvement in residential trend is perhaps the most significant feature in current building records.

This improvement has not yet registered increases in actual residential volumes, only in terms of index numbers which show that, relative to the customary seasonal trend, the past two months have made a better showing than previous months. Coming after a full twenty-four months of steadily declining volume this recent improvement in the residential index looks as if revival is on the way.



The above chart shows that in the past two months residential volume, in terms of index numbers and relative to the customery seasonal trend, has made a better showing than in previous months

Utility Work Gains

A glance at the chart accompanying this article shows that residential building (which includes apartments, hotels and one and two-family houses) is the one important section of the construction field where a drastic recession has taken place. Public works and utilities contracts have been let in record volume since the first of this year; at the end of May total contracts for this class of work had been let in the thirty-seven States east of the Rocky Mountains to the extent of 21 per cent more in total dollar value than in the corresponding period of 1929, and 39 per cent more than the average contract volume of corresponding periods in the 1925-1928 boom era.

Non-residential building volume has suffered only a minor recession, similar to the recessions of 1924 and 1927; at the end of May non-residential building contracts were 11 per cent behind last year, but only a little more than 2 per cent behind the average volume of corresponding portions of the years 1925 through 1928.

Expectations of large increases in construction activity in the second quarter of this year have been to an extent disappointed, resulting in a shift in business sentiment from over-optimistic anticipation to rather extreme pessimism. The enormous volume of public works and utilities announced in the plan stage early in the year, with the wide publicity attending the announcements, coupled with the failure of this class of work to continue in larger volume than last year during April and May, has caused business men to lose sight of the fact that much was actually accomplished by increased public works activity in mitigating the severity of the decline, even though it was not enough to offset the continued residential slump.

Projects Are Speeded

Increases in public works and utilities contracts during the first quarter were largely accomplished by speeding up projects already planned. Some of the projects planned since December are beginning to reach the contract stage now. With a 21 per cent lead over last year at the end of May, and reasonable expectations of large volumes of this class of work during the remainder of the year, it is highly probable that the year will close with a record volume of public works and utilities construction.

In the field of non-residential building, contract-letting by public officials has had a stabilizing effect. Contracts for commercial and industrial projects have run 20 per cent behind last year; but contracts for other non-residential building, mostly public and institutional, have increased 7 per cent, resulting in a net decline of 11 per cent for non-residential building as a whole.

The public works stabilization program has produced measurable results, even though it has lost some momentum in the past two months and has been disappointing to expectations of general business recovery before the turn of the year. In spite of current pessimism, it is probable that many of the large projects planned in recent months will be started in the next few months and that the momentum lost in the second quarter may possibly be regained by the end of the third quarter.

Analysis of the records has shown that residential building has been the one section of the construction field

that has participated in the world-wide economic depression we have recently experienced. The residential decline has been of staggering proportions, perhaps the most serious in the whole field of American business.

The largest monthly volume of residential contracts recorded for the thirty-seven States during the boom period was $288,825,800, in May, 1928; the smallest monthly total in the recession period was $66,631,900, in January of this year, a decrease of 77 per cent. Or, to express it another way, residential contracts during the four calendar years of 1925-1928 (the boom period) averaged $2,695,000,000 a year; during the twelve months ended May 31, 1930, they amounted to $1,485,000,000 (thirty-seven States' figures), the decrease measured this way amounting to 45 per cent. Residential activity fell so low there was practically no way to move but up.

The worst decline within the residential class has been in apartment building. Next in extent has been the decline in housing developments consisting of one-family houses of two or more buildings; dwellings erected for individual owners have declined only moderately. Consequently, the residential slump has been practically entirely due to overproduction of speculative housing. Along with overproduction of housing there was overproduction of real estate subdivisions. In short, the residential slump is in essence a real estate slump following a period of too rapid and too extended expansion of our cities and their suburban areas.

A fortunate circumstance in the present situation is recognition on the part of leaders in the real estate profession that they must take a larger responsibility in the future in controlling intelligently the development of their respective communities and guarding as far as possible against future overexpansion.

The National Association of Real Estate Boards is working toward professional status of its members, and advocating courses on real estate and land economics in leading universities and business schools. Leading architects and city-plan experts, too, are giving much study to land economics. Real estate development is so important among the foundations of our economic structure, the evils of over-speculation in that field are so great, that acceptance of responsibility for guidance of future developments by enlightened real estate men, architects and community planners is essential to proper development in the future.

While apartments were overproduced to a greater extent than one- and two-family houses, and have suffered a severer slump, there are a number of reasons for believing they will become more important than small houses in future building programs.

The trend toward urban living continues without interruption. Our latest period of expansion has included enormous spread of suburban developments in the vicinity of our large cities, leaving run-down residential neighborhoods in older sections occupied with obsolete structures and very serious vacancy conditions. The most striking example of this is, of course, the lower East Side of Manhattan Island, which has been steadily losing population to outlying boroughs and suburbs and has left potentially valuable centrally-located land cluttered with "old-law tenements" which must be replaced with modern structures. Other large cities have similar centrally-located residential neighborhoods to be reclaimed.

In the case of the small house, modern improvements, having a strong appeal to prospective buyers and tenants, have increased the cost of the property to such an extent that, in the strictly dollars-and-cents cost of housing, ownership of new individual houses has become uneconomic for large numbers of people with small and moderate incomes. Up to the present time the one type of housing that achieves economies in first cost and operation cost to owner or tenant through wholesale production methods is the well-planned modern apartment of large size.

The residential slump has been so severe and so prolonged that demand and supply must be approaching adjustment in many cities, so that improvement is reasonable to expect, even though residential building demand is reappearing rather slowly. Quite gradual improvement is likely during the next few months, with some acceleration of activity in the fall. Contrary to earlier anticipations of quick recovery, residential volume for the full year 1930 will be considerably behind the 1929 total, even though chances favor slow improvement through the remaining months of the year; non-residential building may slacken somewhat during the next few months, with a good chance of pickup in the fourth quarter; public works and utilities should maintain through the year a sizable margin over 1929. Total contracts for all construction were running 18 per cent behind 1929 at the end of May. The spread from last year should be narrowed somewhat as the year progresses, with the possibility of a 1930 total not more than 12 to 10 per cent behind 1929.

The Master Salesman

(Continued from Page 66)

heater is in a number of homes in your community, and giving satisfactory service; following this with a question as to just what use the prospect had in mind. If there are a number of sizes and types of the XYZ heater, you can indicate that fact, pointing out that, of course, each type and size has its proper uses.

Now your prospect will have to tell you what was back of the inquiry. If he is anything more than a "curiosity seeker" he will unburden himself of his difficulties. They may have to do with the hot water supply there in his home; they may have to do with complaints from tenants in an apartment building—he might even want to make someone a present of a water heater.

Establishing Contact

Until you have reached that point in your conversation—that point at which the prospect tells you the difficulties or needs he is laboring under, you cannot, and should not try to, go into details about your product. But once he has said that he has a water heater ten years old and last month his gas bill was 'way up in the air, you and he have reached a common ground; you can sympathize with his complaint about the gas bill, and out of your experience you can reassure him that beyond a certain point any piece of equipment needs to be replaced. You know, now, what he's up against, and you can offer him the help he needs and wants.

Put it down as a rule without an exception—until you have found a need existing, you aren't ready to demonstrate or describe or explain anything. It's your knowledge of your prospect's need, and his knowledge that you can and are offering the help required under the circumstances, which builds confidence between you and him; without that confidence there can be no sale.

The first few moments of the sales interview—the approach—are important because they must develop that statement of the prospect's needs so that you may offer intelligent service.

Better Methods Will Pay Dividends

By WILLIAM WOLFF

William Wolff

THERE is no intention on the part of your educational committee to teach a master how he should govern, or in other words, how he should run his plumbing business. That is not the purpose for which the committee was originally created. We do not propose to function along such lines.

There is, however, a similarity in the working of our educational committee, the scholarship committee and the apprenticeship committee, therefore they may be termed co-operative.

The apprenticeship committee has under its guidance the helper or apprentice, encouraging him and teaching him the rudiments of our craft.

The scholarship committee has to do with the higher education of the young man who has served his apprenticeship, offering a college course by way of a scholarship, whereupon graduating he will be entitled to a Bachelor of Science degree.

When the apprenticeship committee and the scholarship committee have fulfilled their duties, they turn their wards over to the educational committee (we died-in-the-wool masters) to finish up the job.

Now understand, we are not criticising the work of the aforesaid committees. They do a fine job, but after all when the young men, whom they have sponsored, enter into the plumbing business upon their own merits and resources to go it alone, that's the time a plumber needs a friend and that's the time your educational committee functions.

Due to the rapid progress of our industry, we must be ever alert in order to keep pace with the trend of the times.

Two Types of Masters

The master plumber who is quite content to go along in the same old way from year to year, unwilling to adapt himself to up-to-date business practice and sit idly by and say, it can't be done, is very often interrupted by the other fellow doing it.

The modern way to get trade and keep it is by turning out a good job at a reasonable price and the only way to accomplish this end is through efficient workmen, modern methods and up-to-date equipment. If you do that, you are moving up to greater profits. This applies to the master, who does jobbing and overhauling work, equally as well, as it does to the master, whom we term the new worker.

One master plods along from day to day doing things in the same old way, afraid of the so-called "new fangled ideas," doubtful about adding up-to-date fixtures and appliances, using tools that belong to a by-gone day, laboring under the handicap of old fashioned equipment, that long since has outlived its practical usefulness.

He leaves for the shop early in the morning, he comes home late and takes out the day's disappointment on the family. At all times, his home is only an annex to his shop. He figures and re-figures every job. He puts his business worries into his estimates, then usually cuts his figures again before submitting them.

Another master just down the street keeps abreast with modern practice, adopts new costs and business methods, which appeal to his customers, contractors and architects and they identify him as a progressive master. In so doing, he cashes in on the benefits of up-to-the-minute tools and equipment.

Both of these men are master plumbers to be sure. One is just a plodding master, while the other is a progressive master—a keen, constructive, conservative business man.

You may draw your own conclusion as to which of the two shows the larger profit on operations at the end of the business year.

Better methods, no matter what they are, pay handsome dividends, but when better methods mean more work and better work at definite savings in cost, their value is doubly important.

Master Must Learn Welding

There is a great need at the present time for statewide education on a practically new industry with which we are confronted and with which, sooner or later, we will have to compete, if we continue to sit idly by and take no action. I refer to pipe welding.

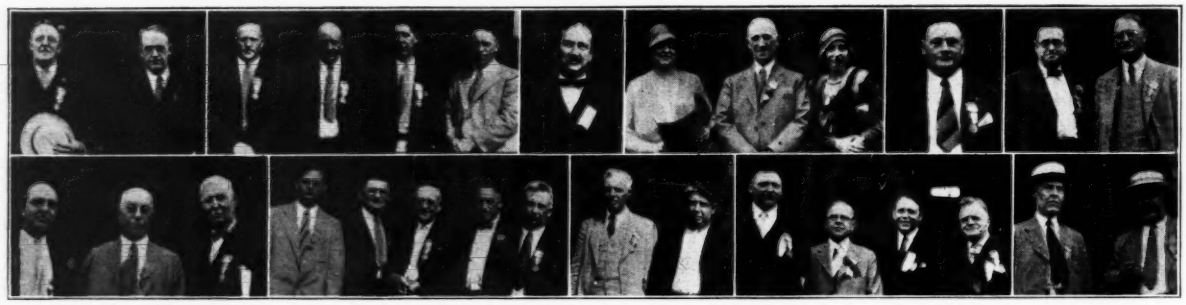
An effort should be made to obtain co-operation between local boards of education, journeymen plumbers' unions and master plumbers' associations to maintain a welding class, where it may be possible to educate plumbers in the art of welding.

We should not let this welding business get away from us as we did our pipe covering, which rightfully belongs to us and not a pipe coverers' union.

We must forestall a separate organization of welding pipe fitters, pipe welders or what have you. If our state organization will interest itself and see to it that our journeymen plumbers get practical experience at welding, we will keep this operation and branch of our industry intact.

Emil Geyer of Rochester, who is a member of my committee, reports that one of our master plumber contractors had some welding to do on a state job at Thiels,

The report of William Wolff of Brooklyn, N. Y., chairman of the educational committee, delivered before the recent convention of the New York State Master Plumbers Association.



Top row: Robert Robertson and Robert Robertson, Jr., of Beverly, Mass.; John J. Fahy, James Lowe, Bert Blanchard and R. Fahy, all of Waterbury, Conn.; I. H. Morris, executive secretary, Newark, N. J., association; Mrs. Olive Gaudette; G. W. Paul, Crane Co., Portland, Me.; Miss Agnes Burns, Smith & Abbott Co., Portland, Me.; Arthur M. Johnson, Newark; Burt Driscoll, Salem, Mass.; William McKenna, Boston, Mass. Bottom row: W. H. Russell Gowdey, Brookline, Mass.; E. W. Cox, past president, Boston, Mass.; B. Jos. O'Donnell, Syracuse, N. Y.; E. H. Rothrock, Bethlehem, Pa.; C. H. Kramer, plumbing inspector, Allentown, Pa.; E. H. Meglathery, plumbing inspector, Harry Schuler and H. Freeman, all of Bethlehem; C. F. Ostberg and Charles Kane, both of Worcester, Mass.; Peter Neilsen, Charles F. Henning, E. A. Putch and Henry D. Jost, all of Brooklyn, N. Y.; E. E. Manahan and Thos. J. Manahan, plumbing inspector, both of St. Louis, Mo. Photos taken at the Boston convention, N. A. M. P.

N. Y., and upon asking a representative of the journeymen's union for a plumber who could do welding, was told that there was no such man belonging to his union. The master was therefore compelled to go to Suffolk, a distance of thirty miles, to get a welder from a local garage.

A very trying condition would exist if the men who can now do welding should apply to the American Federation of Labor for a charter in order to form a union and claiming welding in all branches of industry. It would cause no end of friction and result in a fine mess for some years to come, if any such charter were issued.

It is proper, therefore, to grant by agreement, that all pipe welding or cutting pertaining to our trade shall be done by union plumbers and we might recommend also to include union steamfitters in protection to their trade.

In order to keep up-to-date, now is the opportune time, here in convention assembled, to discuss the matter of electric and oxy-acetylene welding as pertains to our industry. Let no further inroads be made upon our trade.

This convention should not adjourn without taking immediate action and when the subject shall have been fully discussed, devising ways and means to handle the situation either by resolution or committee. The incoming executive members should then ask for co-operation from the National Association of Master Plumbers and the National Association of Journeymen Plumbers.

Your educational committee further recommends, that the subject of pipe welding be taken up for consideration at the convention of the National Association of Master Plumbers, to be held in Boston, Mass.

For the benefit of our delegates, I might state that I have been informed that a certain engineering institute, under the direction of the Young Men's Christian Association in an adjoining borough of this city, has established a special pipe welding and cutting course especially adapted for plumbers and steamfitters, consisting of eleven sessions. I dare say, that there are other similar institutes established throughout the state.

A co-worker of my committee, Theodore Whalen of Jamaica, N. Y., reports that our Three-Day Institute Course at the New York University has been passed by this year, due to the lack of interest on the part of our master plumbers.

It is difficult to make some of our masters in business do anything to help themselves. Your committee believes that the men in business today need education more than the boys, in regard to business management, estimating and making a fair profit; an educational program to have a lasting effect will take time. We cannot expect results too quickly, as business conditions improve (and quite correctly too), but don't let's be caught asleep at the switch.

We must use progressive measures along conservative selling lines and in connection, therewith, I might state that Mr. Flentje, manager of the Plumbing and Heating Industries Bureau, is credited with a statement, which he made at the National convention held at Buffalo in answer to a question regarding selling plumbing on installments, which if carried out by the master plumber will be of great assistance to him. Mr. Flentje said in speaking of the master plumber:

"He may be subjecting himself to some criticism, but we have to face the facts. How are you going to sell people in competition with your competitors in the automobile industry and the radio and others, unless you are willing to fight them with the same weapons? I can

> "The old fashioned type of plumbing is not good enough for most people. There must be a style element, a luxury element entering into it before you can convince them, so the people who have not the ready cash must be offered time payment selling."—William Wolff.

walk in tomorrow and buy the most expensive automobile, make a deposit and pay the rest, when they catch me."

Mr. Flentje's statement is worthy of consideration. Gentlemen, permit me to say, that people are doing just that. When you come around and tell them they must pay cash, they are not interested.

Don't forget, the old fashioned type of plumbing is not good enough for most people. There must be a style element, a luxury element entering into it before you can convince them, so the people who have not the ready cash must be offered time payment selling.

There is nothing unsound about it. There is no doubt about it. It is one of the tendencies of the time. When we take away the embarrassment of asking for cash, we will be far ahead along selling lines.

The work of education must be carried on through the trade press, in our conventions, in our respective local associations and in our contact with others.

The history of great reforms teaches us that the need of education does not terminate with legislation. There must be continuous efforts if what we transact is to be fully accomplished.

To be conscious of the fact that you have a full-sized, hard-working, loyal backer that you can depend upon when you need help and advice in the problems with which you are confronted in the management of your business is a source of great satisfaction. That never failing backer is your local association; therefore be loyal to it.

Warm up to the man who has recently entered this business of plumbing for himself, win his confidence, solicit his membership into your association; and should he become a member he will hold you in high regard.

A feeling of loyalty is an asset to you, which cannot be overlooked in these days of strength and competition. The advice and assistance you render your fellow member is a duty you owe yourself and your industry.

Roosevelt's words have been quoted again and again: "a man owes a certain portion of his time to the upbuilding of the industry of which he is a part."

You can no better discharge your duty as a master plumber than to render freely your aid and assistance in order to educate your associate, thereby making his way in business a little easier.

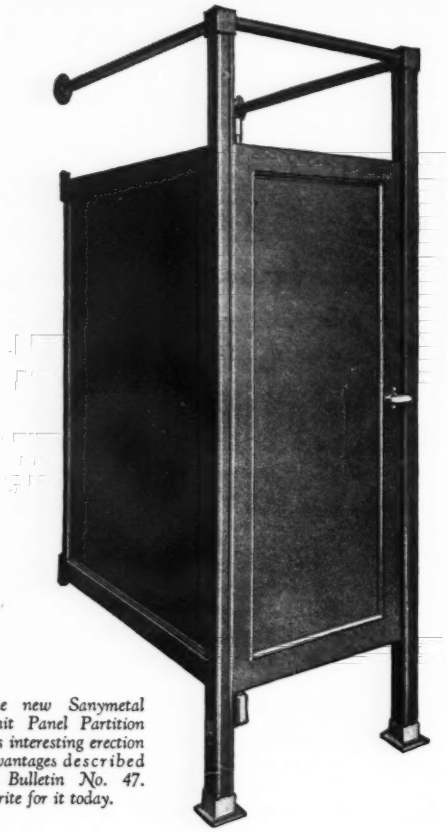
That a master shall take care of his own work is expected; that he shall put his strength and ability into caring for his own is taken for granted, but if asked to do anything for another, he should do it in the same spirit in which he would expect it done for him. He is simply doing what a reasonable person might be expected to do.

Thus an association supplies the combination of practical knowledge and ability through the friendship and mutual interests of its members.

The spirit of fraternalism may be better expressed by adopting the slogan "Share Your Knowledge.".

In conclusion, gentlemen, regarding the matter of business stability, it is true, that we have recently experienced a period of discouragement, that has tested our faith and courage. Bad news may have been emphasized. The business index of trade and industrial activity, which was perhaps above normal a year or two ago, is now below normal. It is no wonder many are disturbed over the outlook, but only the froth has been

COUPLING FIG 1002 C
for
COPPER TUBE PLUMBING
only 3 FITTINGS
TEE
UNION FIG 1001 C
ANDERSON COUPLINGS
In this drawing, showing typical joints in a Copper Tube Plumbing Installation, it is easy to note that only Three different type Anderson Couplings are necessary for the entire job.
Save money—save time—do better work. Sell Copper Tube Plumbing and Anderson Couplings.
Write us for catalogue.
UNION FIG 1001 C
TEE
COUPLING FIG 1002 C
TEE
UNION FIG 1001 C
THE CHAPMAN VALVE MANUFACTURING CO.
INDIAN ORCHARD - MASS.



The new Sanymetal Unit Panel Partition has interesting erection advantages described in Bulletin No. 47. Write for it today.

Add This Toilet Partition Business to Your Volume

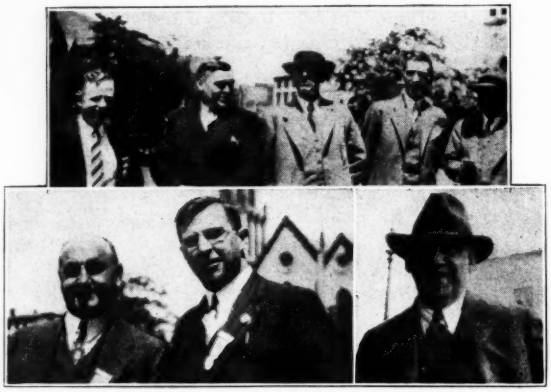
TODAY progressive plumbing contractors are taking advantage of every opportunity to figure on steel toilet and shower compartments. Often you can arrange to have them included in the plumbing estimate. The result is more business and more profit for you.

In these days of mounting overhead, with *profit* harder to make, every extra dollar is important. You can't afford to overlook this suggestion.

And — when you're figuring steel partitions — don't forget that The Sanymetal Products Company have been headquarters for partition values for fifteen years. We shall be glad to cooperate fully with substantial plumbing concerns. Write for details.

The Sanymetal Products Co.
1723 Urbana Road
Cleveland Ohio

Sanymetal
STEEL TOILET & SHOWER PARTITIONS



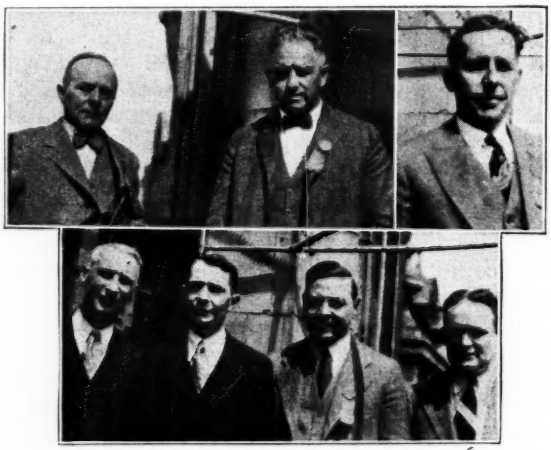
Top row: E. P. Ingram, of Jersey City, fourth vice president of state association; John J. Brennan, secretary of Jersey City association; William Snudden of Morristown; M. F. Whalen, Standard Sanitary Mfg. Co.; T. F. Roche, Pascoe Oil Burner Co. Bottom row: Fred Engelberger, Newark; Robert A. Jack, "Domestic Engineering"; A. A. Taafe, Newark. Photos taken at the convention of the New Jersey Master Plumbers' Association

knocked off the business cup. Underneath, the substance is still there. Fortunately, the housecleaning is being carried on at record speed.

Business has decided to take its disagreeable medicine all in one dose so as to get the headache over quickly. Almost before we know it, stores of unsold goods will be used up, prices stabilized, confidence restored and the entire nation will turn seriously to the big job of pushing civilization to still higher levels.

The foundation of American life and business is more sound today than ever before. The greater part of our recent advances have been of a permanent character.

There is nothing to regret in business having become sufficiently hard-boiled to measure practices in terms of profits and demand results instead of excuses. We should therefore not only be unafraid, but ever eager to accept the present moment as an opportunity to strengthen our forces in the field we occupy. It is often worse for one to lose confidence than to lose capital.



Top: Alex, Frank, Columbia; Harry M. Schuler, Bethlehem; William F. Karbel, secretary Reading Suburban Association. Bottom: Richard Turner, Wilkes-Barre; Harry Hammersla, chief plumbing inspector, W. J. Richardson and J. H. Miller, all of Harrisburg. Photos taken at Pennsylvania state convention

Questions?

ASKED BY READERS AND ANSWERED BY EXPERTS

Correcting a Plumbing Layout

Editor, DOMESTIC ENGINEERING:—I had trouble in a recent examination, with a plumbing layout that I was asked to correct. I am sending you the drawing. Please let me know what the correct layout would be, and please explain where the errors are in the drawing the examiners gave me.

New York State. J. G. B.

The drawing that has been submitted is shown in Fig. 1, and in Fig. 2 we show connections such as we would favor. The corrected drawing is not according to any particular plumbing code, but rather according to what we would call general modern practice.

The principal defect in Fig. 1, as usual, is in the venting. The main vent stack serves no purpose except that of venting the drum trap which serves the two sets of wash trays. Each separate fixture should be trapped,—therefore each set of wash trays should have its own trap. A considerable saving can be made, however, by connecting the wash tray traps into the foot of the main vent stack.

There are two features to be mentioned concerning the bathroom work. The two water closets may be vented by a single vent if a special drainage fitting is used. Each bathtub has a wet vent. This connection will be criticized by many, inasmuch as it makes use of a vent for waste purposes, and this is in great disfavor by many. We feel, however, that in bathroom work wet vents are often allowable. The idea is that in a bathroom, two fixtures are seldom in use at the same time, and if they are, it is still more seldom that they would both be discharged at the same instant. This fact, according to our way of thinking, makes the wet vent safe in many bathroom installations.

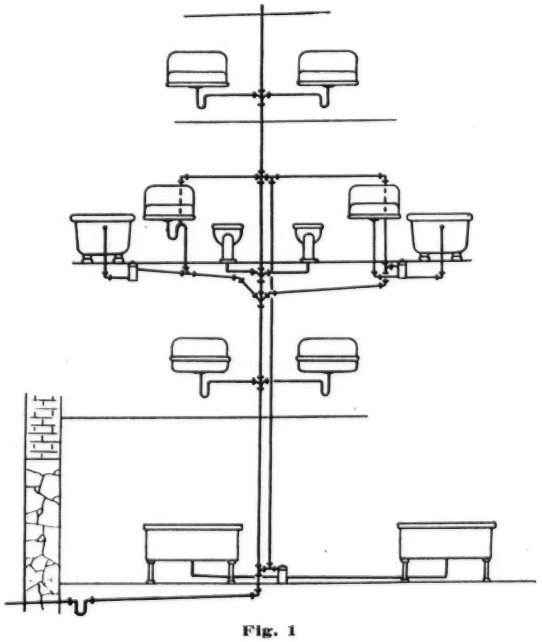


Fig. 1

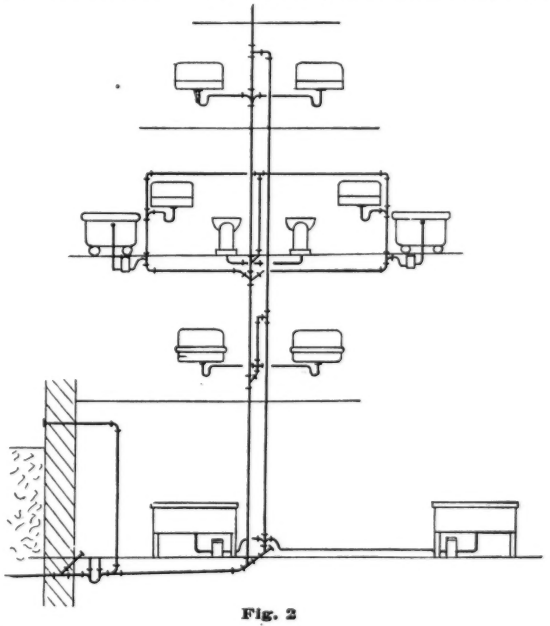


Fig. 2

The other changes that should be made in Fig. 1 will need no special explanation, but are to be seen in Fig. 2.

◆

Wants to Know Reason for a Decimal in Formula

Editor, DOMESTIC ENGINEERING:—I would like to know how a certain decimal constant is arrived at, which is used in the rule for finding the number of gallons of water that will drain from a roof. This rule is the following:—"Multiply the number of square feet of roof by the average number of inches of rainfall per month, and the product by .623. The result gives the number of gallons of water which will drain from the roof in a month. When the roof is not flat, or very nearly so, its area should be considered as the area which it actually covers."

The roof that I am considering is 125 ft. × 110 ft.,

and the monthly rainfall that I am taking is 2 in.

What I don't understand is how the quantity .623 is arrived at. Please inform me.

New Jersey. M. J. R.

If we had no rule or formula to go by in solving this problem, we would reduce the two roof dimensions to inches, multiply them together to get area, then multiply that result by 2 inches, which would give the cubic inches of rainfall on the roof in a month. Dividing by 231, the number of cubic inches in a gallon, would give the number of gallons per month.

For this particular roof, it would work out as follows:—

125 ft. = 1,500 in.

110 ft. = 1,320 in.

$$\frac{1{,}320 \times 1{,}500 \times 2}{231} = 17{,}143 \text{ gals.}$$

Following the rule given in correspondent's letter, the problem would work out viz.:—

$125 \times 110 \times 2 \times .623 = 17{,}133$ gals.

The two results by the two different methods are within 10 gallons of being the same, out of over seventeen thousand gallons, which is close enough for all practical purposes.

The latter method, the one given by correspondent, is much shorter and easier, and therefore the better, if it is understood.

Here is the way we believe the constant (.623) must have been worked out. In the above formula the roof dimensions are in feet, and the rainfall in inches, which is not according to good mathematics. By good rights, all three dimensions should be in feet or all in inches.

Nevertheless, if it is easiest to figure the roof in feet while taking the rainfall in inches, there must be a constant, sometimes called a multiplier, which, if always used when the roof and the rainfall are so taken, will rectify the false result and give the correct result.

The correct result, as we have seen, is 17143. The incorrect result obtained by using foot dimensions for the roof and inch dimension for rainfall, is $125 \times 110 \times 2 = 27500$. The correction is found as follows: $\frac{17143}{27500} = .623$.

Then, multiplying roof dimensions in feet by rainfall in inches, and the result by .623, will give a correct result.

We are glad to answer this inquiry for more than one reason. In the first place, we are glad to see that M. J. R. is not willing to follow a formula blindly, but wants to know the reason for each step. In the second place, this explanation gives a very clear idea of the reason for using a multiplier in an engineering formula, and the way the correct multiplier is found.

Another method for determining this value is to work out the problem without using it and then construct a general equation, reducing it to its lowest terms. As indicated above, it is not correct to multiply feet by feet by inches to obtain cubic feet. The problem is to find the number of gallons which will drain from a roof over a period of a month. Let "L" equal the length of the roof and "W" the width. The depth of the rainfall is expressed in inches and to change this value to feet it must be divided by 12. Then the volume of the water which falls on the roof in a month is the length of the roof multiplied by the width and then multiplied by the depth (in inches divided by 12). The equation is

$$\text{Volume in cu. ft.} = L \times W \times \frac{D}{12}$$

There are 7.48 gallons in a cubic foot of water. Multiplying all of the above by 7.48 gives the number of gallons or,

Volume of water on roof in gallons =

$$L \times W \times \frac{D}{12} \times 7.48$$

Then, dividing 7.48 by 12 in order to reduce the form of the equation the value .623 is obtained and the equation becomes,

$$\text{Gallons} = L \times W \times D \times 0.623$$

◆

Would You Correct This Piece of Plumbing?

Editor, DOMESTIC ENGINEERING:—I am sending a drawing of a plumbing installation which I recently came across.

The sink waste is stopped near the 4-inch stack. When water is poured into the sink, the waste line leading from the second floor basin and the first floor sink will fill to the level of the top of the sink, causing an air pressure in the upper part of the basin

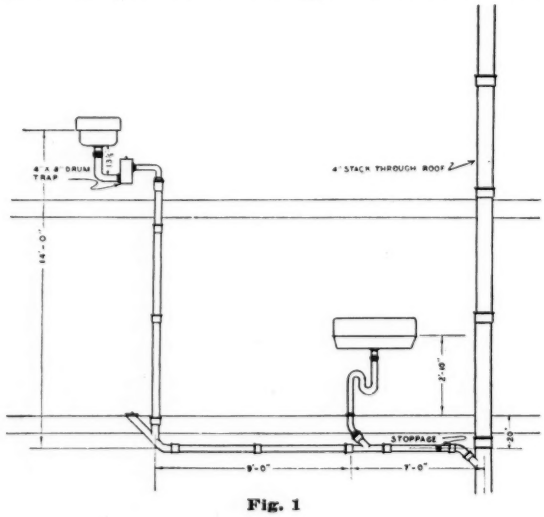


Fig. 1

waste which will raise the water in the trap up into the basin bowl. These traps are not vented.—

Missouri. J. E. B.

The installation mentioned is shown in the accompanying illustration, Fig. 1, and it presents an interesting problem.

Water, of course, finds its own level, and therefore when it has risen in the sink connection on the first floor, and begins to flow over the top of the sink,

it can rise no further. That means that the water rises in the waste line from the second floor basin only to the level of the top of the sink.

However, in rising to this level, it compresses the air between the rising column of waste and the seal of the trap. This compression forces the water in the trap up into the basin.

This is a fine illustration of what can happen in an unvented plumbing system.

We are offering these connections as a problem for you to work out, and shall be pleased to receive sketches showing how the work might be installed to overcome the existing difficulty most effectively and with least expense.

Questions Answered and Discussed by Readers

How the Question Was Answered

The following question was asked in the issue of June 28, and the accompanying answers are by readers:

When is it economical to collect on the job, return to the shop, and thread surplus bald-head pipe?

How Would You Answer This Question?

What are the outstanding features of plumbing installations for public garages in large cities?

Answers based upon your experience, and suitable, will be paid for and published in the August 23 issue.

1

WE collect every scrap of bald head pipe that we make on a job. Up until about a year ago when we sent a journeyman out on a job we had the ruling that every time he cut a piece of pipe he had to cut two threads. As a result, there was no bald head pipe and all of the nipples were collected when the job was completed and brought back to the store-room. Incidentally, there was a tendency for the men to slip up on this rule, especially the new ones who were working against time and wanted to make a showing. The result was that we lost a considerable amount of good pipe because it was not threaded as required, and more than one man has been given his time because of this.

Now, our men are working on the basis that they must not thread any pipe on the job which is not necessary in the installation on which they are working. Then, all of the bald head pipe is collected and brought back to the shop and placed on a separate rack. On a bad day, or between trips, there is a standing job in the shop of cutting threads.

We specialize in giving quick service. Most of our work is of the repair type. As a result of our pipe threading and stock system, the other day we installed 76 ft. of line without cutting or threading a

Profit from
DUR-A-BALS
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Why pass up this additional profit which you may have for no extra effort? Simply put in this carton, now. It will do the rest. Your jobber has it.

Lavelle Rubber Co., 320 W. Illinois St., Chicago, Ill.

STAR-NACO Range Boilers

The range boiler built to a standard and not to a price. Sold only to licensed plumbers—STAR-NACO Range Boilers cost a trifle more because of the extra years of service built into them. They offer long satisfaction to your customer and a fair profit to you.

Write for details

D. D. WESSELS & SONS CO.
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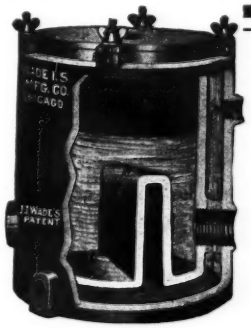

WADE WATER JACKET GREASE TRAP

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only $48 installed

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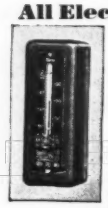

1 Automatically checks furnace in event of electrical current break.
2 Automatically re-engages after fueling.
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Simple to install. Thousands are in use. Listed as standard by Underwriter's Laboratories.

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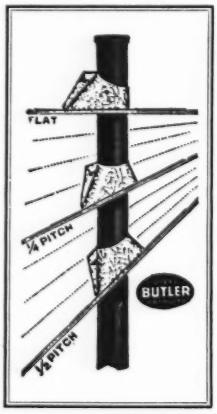
Note the wide range of adjustment in the Overton Roof Flashing—enough to instantly take care of any roof.

Any mechanic can install an Overton in a few minutes.

There are no details that take time and patience on the roof. No pipe



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single piece of pipe. Couplings were not used. When going out on a job we throw on the truck a load of nipples and short lengths if it is ordinary repair work, and bring back everything that is not used.

Chicago, Ill. M. T. W.

2

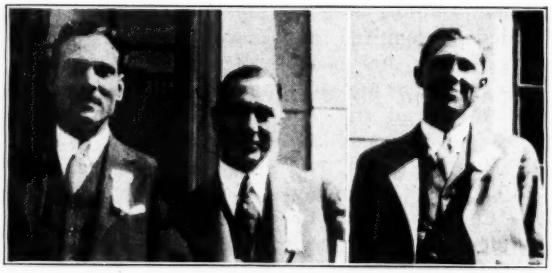
IF a concern does the larger type of work, it is my opinion that they must do more than eighty thousand dollars worth of business a year to make profitable the collection of bald-head pipe for threading in the shop. In this type of work, production methods must be applied throughout the organization, even to the handling of this surplus bald-head pipe and unless there is a sufficient quantity, obviously, such production methods are not possible. Quantities, under these circumstances, are figured in terms of tons as contrasted with considering nipples in numbered lots. We have found that surplus bald-head pipe worth eight dollars per ton as scrap becomes worth more than one hundred dollars per ton after it has been collected on the job, trucked to the shop, cut and threaded in standard length nipples and stocked ready for the next job.

Chicago, Ill. J. A. Scott.

You Meet Some New Problems

(Continued from Page 76)

vented, and yet there is a certain large city, with perhaps other smaller cities in the surrounding territory, where it would be felt that the lower water closet in Fig. 13 is effectively vented. They would say that these two fixtures are on a continuous vent system. If there were a third water closet on the next floor above, or one or more other fixtures of some other type, the soil line would be carried to that point and after receiving the waste from those fixtures, it might continue on up to another floor, and take in some more fixtures, finally emerging through the roof. As we say, this wandering line of soil pipe, without any accompanying vent line, is considered as a continuous vent system, and no doubt because the line finally opens through the roof into the outer atmosphere, it is considered that the system is a vented system. This is just one more way in which two water closets can be served, and we give it place here, not because of any excellence whatsoever, but simply as one more item in our collection.



Left to right: E. M. Walker, American Radiator Co.; W. J. White, Reading Iron Co.; H. Aardema, Newport News. Photos taken at convention of Virginia Associated Plumbing and Heating Contractors

LEGAL QUESTIONNAIRE

Answered by "The Judge"*

Rights of Plumbing Contractors Under Uncompleted Contract When Owner Goes Into Bankruptcy

Editor DOMESTIC ENGINEERING:—Two years ago I made a contract with an owner to install plumbing in a residence and soon after completing the roughing in, giving waiver, and receiving payment, the owner had financial difficulties which resulted in the appointment of a receiver to complete the building. The receiver is asking for bids to complete the building, including the plumbing, and I contend that my contract is still good and should be lived up to by them.

Illinois. S. F.

Answer:—Although you do not state definitely, I shall assume that the receiver, in your case, was appointed by the United States Bankruptcy Court. If the receiver was appointed by one of your State Courts, the answer would probably be much the same.

The receiver, in bankruptcy, may either assume or renounce executory contracts of the bankrupt. An executory contract is a contract which has not yet been carried through to completion. While you probably think of your contract as being of a different kind than those of some other creditors, it is in effect little, if any different, as far as your rights under it go. For instance, your rights under your contract are, that if you complete it, you are entitled to be paid, and if, for any reason, the owner fails to go through with his part of the contract, you have a right to damages. Any other creditor, to whom money is owed for anything, is in the same boat. He is entitled to be paid.

All creditors have a right to be paid, but, as there is not money enough to pay them all, they have to take their share of what the bankrupt has, if anything, pro rata.

If you stop to think of it, your contention that you have a right to go ahead and finish your contract, would mean that you, as distinguished from the other less fortunate creditors, would not suffer from the bankruptcy as you would be paid in full. That would give you a preference over the other unsecured creditors, and such a preference is not allowed by the bankruptcy law, and is not really fair to the other creditors.

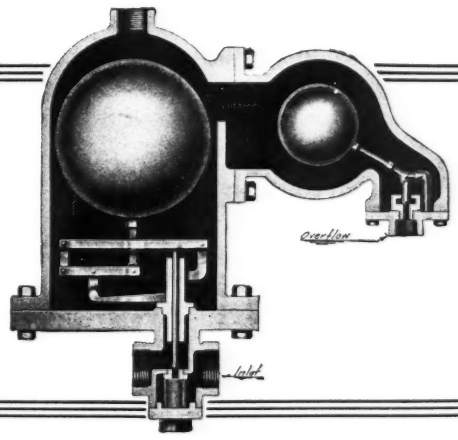
Your rights against the owner were fixed as of the time when he went into bankruptcy. At that time, you were entitled to damages for the failure of the owner to go through with his contract, and would be entitled to show how much money you would have made on the contract as the amount of your claim, as if the owner had merely broken his contract with you, instead of going into bankruptcy.

As I have said, the receiver, at the time of bankruptcy, has the right to elect whether he will continue

* Every effort is made to the end that these answers may be authoritative. However, we cannot assume any responsibility because of the very nature of the service, which is rendered without a personal interview.—Editor.

KIELEY

DUPLEX WATER FEEDERS



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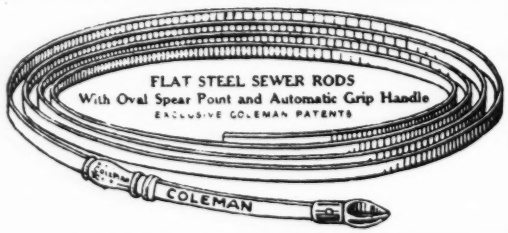

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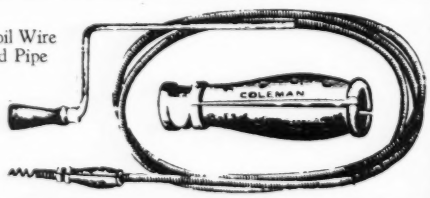

with your contract or get somebody else to do the work. The receiver's rights and disabilities are the same as the bankrupt's were, at the time of the bankruptcy, and his decision whether to continue on with your contract is governed by the best interests of the bankrupt's estate.

The receiver is entitled to a reasonable time within which to choose whether to continue with a contract made by the bankrupt or to renounce it.

As the receiver has elected to ask for bids for others, for the completion of the work covered by your contract, you are entitled, as a creditor, to prove what your profits would have been, if you had completed your contract, and your profits would be the amount of the claim which you are entitled to prove as a creditor. Also, in your case, as you have performed a part of the contract, you would also be entitled to prove, as a part of your claim, the cost of the materials and labor put into the roughing in, if you have not been paid fully for that. Your costs of work performed, plus your expected, reasonable profits, will make up the total of your claim, upon which you will be entitled to receive a bankruptcy dividend with the other creditors in due course.

To answer your question specifically, under the circumstances which you state, you have no absolute right, against the decision of the receiver, to insist that you finish the contract. This is so because it might well be that to complete the building under your contract or any other would not be for the best interests of the estate.

◆

Master Plumber Taps Water Line in Street for Connection to House Is Entitled to File Mechanic's Lien in Missouri

Editor, DOMESTIC ENGINEERING:—I made a tap on a water line and another party ran a water line from the tap to the house, and I am unable to collect from the house owner. Now I would like to know if the laws of Missouri permit me to file a mechanic's lien on the house, or what is the law of Missouri on this question?

I also would like to know if you can tell me or furnish me with the name of some publishing company where I can procure a law book of the State of Missouri,—a law book covering the needs of a business man; that is, a book that I would sometimes need in my plumbing, heating or sheet-metal building business.

Missouri. M. J. A.

Answer:—In the last case touching upon the specific question which you ask in your first paragraph, decided in Missouri in 1910, it was held that a master plumber had a right to a lien for running pipes from basement of residence through the cellar wall into the street and there connecting with the gas, water and sewer pipes. As the claim in that case included materials and cost of connecting with main line in the street, and as it was allowed, it would seem to cover the same facts as your claim.

The case I have referred to was brought by a plumbing partnership of St. Louis, who were subcontractors. They filed a claim which included among other items the following:

"$12.25—Water Company, $4.75; lead in street, $7.50.
$7.00—Plumbing permit, $5.00; water permit, $2.00."

Referring to these items, the Court said:

"The items 'Water Company $4.75' and 'lead in street

$7.50' are so indefinite and unspecific as to be improper as against the owner in a bill by a subcontractor with whom the owner has not dealt and who must get his information from the account."

After discussing the law on the subject of claims for similar work, the Court said:

"We therefore hold that if the item 'lead in street' had been stated so as to be understood and it was thereby seen that it connected or was used in connecting the water, gas or sewer, with those pipes in the street, it would be lienable."

The Court held that the Missouri Statute giving right to lien did not give right to lien for expenses in procuring plumbing, sewer and water permits.

Back in 1877, in a case not reported, but mentioned in the Appendix of 3 Missouri Appeal Reports, at page 575, it was apparently held that "a mechanic's lien will not attach for work done on the public highway, though such work be absolutely necessary to render the work done on the property sought to be charged of any use, and is immediately connected therewith." As this case does not state what "work done on the public highway" was, and as it might have been road construction, I do not believe, in view of the later case in 1910, which I have cited, that this older case would be followed at this date.

It would therefore appear that you have a right to a lien.

In making this answer, I have assumed that all other facts are in your favor, and that your only question was whether you had a lien because of the nature of the work which you did.

Answering the question asked in your last paragraph: I do not know of any book such as you refer to, and do not believe that such a book is published. There have been a number of books published on general business laws, applicable to most states in the United States. The difficulty with such a book is, that unless you should consult a Missouri lawyer, you would not know whether the law stated about any subject really applied to Missouri.

Even if I did know of a book such as you inquire about, I should hesitate to tell you about it, because any such book, if properly labeled, as medicines are, should have a bright red stripe running across the covers, front and back, labeled: "Poison." How many volumes do you think it would take to tell about all there is to know of plumbing, heating and tinwork? Can you imagine any small volume which could tell me, for instance, all I need to know about running a stack up through a building, or laying out a laundry, etc.? Are there not many rules, in your plumbing work, which may apply to one job, but would be "poison" on another job? Do you know that the Supreme Court of your State has written several hundred volumes of decisions in decided cases, and that many other hundred volumes have been written about cases which have not yet been decided by your high court? To be of any value to you, and not a possible trap for a bad mistake, the volume that you seek would have to contain all that is in the many hundred volumes of the laws of Missouri.

If you do find the kind of book which you are looking for, it will at least be in form for me to congratulate some attorney in your vicinity on the prospect of securing you for a client in the very near future.

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Women's Auxiliary Holds National Convention

THE Women's Auxiliary to the National Association of Master Plumbers met at the Hotel Statler, Boston, Mass., on June 23, 24 and 26, as reported in the July 12 issue of "Domestic Engineering," for its twelfth annual convention. Mrs. W. E. McAndrew of Tampa, Fla., was re-elected president of the organization for another term, and her complete report on the accomplishments and activities of the National Auxiliary during the year that has just passed will appear in a later issue.

Jere L. Murphy of New York City, chairman of the trade school committee of his local association; M. J. Kennedy of Brooklyn, N. Y., president of the Greater New York association; P. W. Donoghue of Boston, general chairman of the convention committee and new National vice president; Joseph A. Maynard of Boston, president of the Eastern Supply Association; B. Joseph O'Donnell of Syracuse, N. Y., field representative for the local association; E. L. Flentje, manager of the Plumbing and Heating Industries Bureau, and Fergus M. McLoughlin of New York City, past state president, were among those who addressed the auxiliary meeting. Their comments will appear in a later issue.

The address of welcome by Mrs. Herbert L. Rose, president of the Boston auxiliary, in which she expressed the hope that the stay of the delegates and guests would be enjoyable, was responded to by First Vice President Mrs. George W. Frank of Buffalo, who indicated that the hospitality and unusual consideration for the comfort and enjoyment of the visitors, typical of the city, had already made an impression, the pleasantness of which would be remembered for many years. Mrs. James F. Murphy of New Bedford, president of the Massachusetts state auxiliary, in an address said that she trusted that those in attendance would find their visit memorable because of the special arrangements and preparations marking the 300th anniversary of the founding of the city of Boston.

Hear From State Presidents

A number of state presidents gave a summarization of the activities of their auxiliaries during the year and, in cases where the state executives were absent, presidents of local auxiliaries reported. These accounts each gave evidence of marked progressiveness and participation in numerous successful social activities as well as programs arranged to benefit the auxiliary and the industry. Mrs. E. E. Manahan of St. Louis, president of the Missouri state auxiliary, in her report among other things mentioned that one thousand copies of the National constitution and by-laws had been printed by her organization. These were later distributed with the compliments of that auxiliary.

National Officers Report

The report of Mrs. Frank Williams of Tampa, Fla., corresponding secretary, indicated that a roster of the national membership has been compiled and that replies to the numerous letters sent out were promptly received. Mrs. Williams concluded with the request that her successors be given similar co-operation.

Top row: Mrs. L. Baumgartner and Mrs. L. P. Markowski, both of Chicago; Mrs. J. Miller Heidweiler and Mrs. Richard Burgess, both of Trenton, N. J. Second row: Mrs. P. Nielsen, Mrs. E. A. Putch and Mrs. H. D. Jost, all of Brooklyn, N. Y.; Mrs. R. B. Finn and Miss Jeanette Finn, of Chicago. Photos taken at the Boston convention of the N. A. M. P.

Mrs. Frank and Mrs. Perham offered reports as first and third vice presidents, respectively. These were statements in effect that all possible was done to assist Mrs. McAndrew, their state and other auxiliaries generally.

With the acceptance of the report of Mrs. Robert Liss of Chicago, treasurer, which indicated that the organization is in a healthy financial condition, Mrs. Fanning presented her report as recording secretary. This record showed that many letters had been sent out and received during the year. Referring to the trade papers, Mrs. Fanning said, "They outside ourselves offer more than anything else opportunities for furthering our efforts, and every local and state auxiliary should avail itself of this by sending news of activities." The recording secretary thanked the secretaries of local and state auxiliaries for the promptness with which they answered correspondence.

Resolutions

The report of the resolutions committee recommended the adoption of a resolution advocating that a change be made in Section 4 of Article 6 of the by-laws which deals with voting. This article rules that each officer shall be elected for one year and can only succeed herself once. The change excludes the corresponding secretary and requires that she be appointed by the president. An-

Mrs. E. B. Kleine and Miss Virginia Kleine, of Cincinnati, Ohio; Mrs. H. G. Ridler and Mrs. H. W. Strader, of Minneapolis, Minn. Photos taken at the Boston convention of the N. A. M. P.

other resolution caused the addition of the phrase, "To further the cause of sanitation," to Article 2, which has but one section setting forth the objects of the auxiliary. It was also voted to invest the sum on hand for the past presidents' scholarship fund in Government securities. Action on a motion by Mrs. Corcoran provided that the scholarship fund be placed in the hands of the chairman of the scholarship committee. A motion by Mrs. Charles Quinn of St. Louis that the expenses of the president, secretary and treasurer to the national convention be paid carried.

The report from the credential committee listed the votes to which each of the state auxiliaries is entitled, while that of the courtesy committee carried an expression of thanks from the organization to all those who helped make the convention a success. The memorial committee report, read by Mrs. Ahearn, required that expressions of sympathy be sent to the families of departed members.

The Needlework Guild

The Thursday morning session under the supervision of Mrs. Frank, at which the reports of the officers and committees were heard, was also featured with an address by Mrs. George H. Flint of Boston, who discussed the Needlework Guild of America. Outlining briefly the history of the Guild, which was founded in England in 1883 and first organized in America in 1885 for the purpose of providing new articles of apparel and household linens for hospitals, orphanages, etc., Mrs. Flint explained how a number of local auxiliaries are now working in the interests of the movement. Much of this work embraces the interesting of Girl Scouts in sewing for the guild in an effort to increase the scope of the movement, the speaker said. Later remarks from the delegates brought out the fact that considerable is being done in this direction by many of the auxiliaries and it was urged that the members of more locals take a part in the work.

Receive Letter from Mrs. Hornbrook

Mrs. Hornbrook, having sent tokens for presentation to the students graduating with the highest marks, included an accompanying letter which was read in order that it might be made a part of the proceedings of the women's as well as the master plumbers' meeting. Addressed to the entire class, it likened the freshly won laurels following four years of training at Carnegie School of Technology and the resulting award of Bachelor of Science

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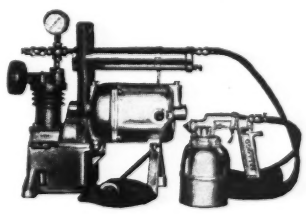

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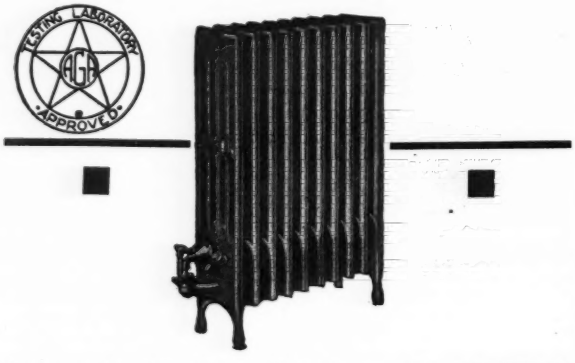

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Top row: Miss Lois Hanley and Mrs. M. Dengel Band, both of Milwaukee, Wis.; Mrs. D. H. Osborn, Beloit, Wis.; Mrs. J. Schroeder and Mrs. O. Kuhn, both of Milwaukee. Bottom row: Mrs. F. R. Dengel, Mrs. Rose Friend and Mrs. F. C. Kuetemeyer, all of Milwaukee; Mrs. W. K. Glen, Chicago. Photos taken at Boston convention of the N. A. M. P.

degrees to the efforts of the A. E. F. in France against the enemy lines and the resulting victory. The letter also urged loyalty to the plumbing industry and to the older master plumbers, and concluded with a message of encouragement to Messrs. Henderson and Nielson, who received the tokens.

Several suggestions were made by delegates just previous to the final adjournment, included in which there was one from Mrs. Corcoran, pointing out that the holding of state board meetings in cities where there are no auxiliaries and inviting the local ladies has proved a good means of arousing interest that results in creating new organizations.

At the request of Mrs. Perham for an explanation of the duties of the directors, President McAndrew stated that they are required to aid in the work of the National Auxiliary and help generally with organization work in their respective vicinities. Concerning the value of organization, Mrs. Fanning pointed out that with a state well organized there is appreciably greater weight available than would exist with a few scattered locals, especially when outside controversy arises.

In making a request that Milwaukee be considered favorably as the next convention city, Mrs. Friend of that city stated it has been thirty-seven years since a national convention was held there. Detroit made its bid for the 1931 meeting through a representative of the Mayor of that city.

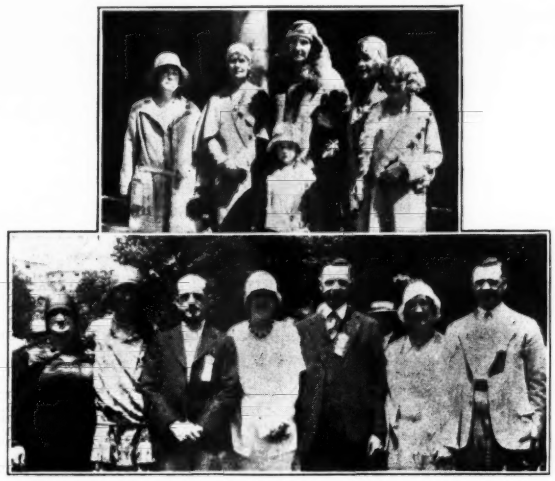
The President's Report

Following is the report submitted by Mrs. W. E. McAndrew as president of the National auxiliary during the past year:

Soon after the closing of the National convention, held in Buffalo, N. Y., in June, 1929, the affairs of the National Women's Auxiliary began to shape themselves, and the National office opened for business at 301 West Frances avenue, Tampa, Fla.

The first official act of your president was to personally organize an auxiliary to the master plumbers' association in Albany, N. Y., in July, 1929.

In September, a memoranda of changes in the National constitution and by-laws and notice of advance of dues (National) from 10 cents to 25 cents per capita, together with an official letter regarding same and asking the cooperation of all auxiliaries, was sent to all National officers, directors, scholarship committee-women and members of the opportunity committee, also to all state presi-



Top row: Mrs. George E. Wilkinson, Mrs. Len C. Savage, Mrs. Wm. Harrigan with Peggy Harrigan, Mrs. C. C. Smith and Miss Evelyn Smith. Bottom row: Mrs. Alex. Coleman, Mrs. Jack Camp, J. V. Young, Mrs. C. W. Higgins, Jack Camp, Mrs. J. V. Young, C. W. Higgins. Photos taken at the convention of the California Merchant Plumbers' Association

dents and local presidents where no state division existed. Almost a hundred of these were sent out. As soon as possible 100 copies of the National constitution and by-laws, with amendments embodied therein, were printed and were being mailed to our members when word came that the Missouri Division Women's Auxiliary, through the recommendation of our national historian, Mrs. A. W. T. Marx, was having the National constitution and by-laws printed in book form. These neat little booklets are on hand here to be distributed to the membership.

Of great importance was the National Women's Auxiliary Past Presidents' Scholarship voted at the Buffalo, N. Y., convention. It has been our earnest endeavor to complete this work during the year and many letters of explanation have been mailed regarding it. Also letters and literature supplied us by the National scholarship committee regarding the requirements for competing for these scholarships, were mailed from this office.

In February our attention was called by Mrs. Zertanna, President of the Missouri Division, to a broadcasting skit which was uncomplimentary to our profession, seemingly. A letter of protest was sent to this broadcasting firm and upon the recommendation of your president a similar letter was sent to this firm from the Florida Association of Master Plumbers. The Erwin Wassey Company in due time acknowledged this letter of protest and sent a letter of apology.

In the May 15 issue of the Saturday Evening Post was a splendid cartoon entitled "On Guard—The Plumber." A wonderful tribute to the master plumber and his profession was paid them by the C. F. Church Mfg. Co., Holyoke, Mass. An official letter was sent this firm, thanking it for its efforts on behalf of our industry.

Almost simultaneously came articles along the same line appearing in a Tampa, Fla., newspaper. An official letter was sent to the paper, and this letter was published in a later edition of the paper. Your president also called in person to see the editor, taking copies of booklets on this subject that might be of interest and help in future publications.

Attention has been called to the splendid work that has been done by Mrs. Kerwin of Joplin, Mo., a member at large of that state, through whose efforts school chil-

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Fiat Shower Bath Compartments and Shower Doors

The FIAT Shower Bath Compartment is sold to and installed by the plumbing trade.

FIAT Shower Bath Compartments are not a component part of the building—contraction, expansion or settling cannot affect them — leakproof, trouble-free. Made in many sizes and designs; knock-down construction—installed on rough or finished floors.

Write for full particulars.

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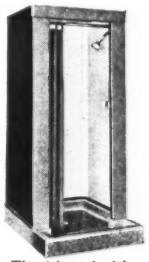

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Standard Copper Water Tube
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Extra Heavy Copper Water Tube
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Seamless Copper, Brass and Aluminum Tubing
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MAKE AN EXTRA PROFIT .... EASILY

Always include the Speakman Anystream Self-Cleaning Shower Head with every installation.

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YOUR FITTING PROBLEM IS SOLVED *when you say*
"SQUARE GEE'S"
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DRAINAGE, BRASS
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THE GRABLER MANUFACTURING CO.,
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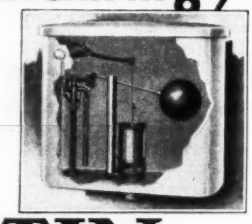
Quiet and Enduring

Regular equipment in the finest units of fine pottery manufacturers.



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Watts Hot Water House Heating Unit; Water Pressure Regulators; Diaphragm Relief Valves; Strainers, etc., can be installed with the assurance of entire satisfaction. For back of this organization is a reputation for square dealing sustained over a period of 56 years.
Write for catalog.

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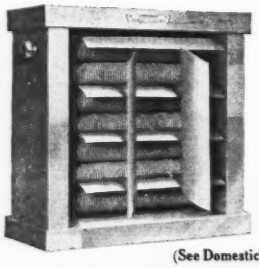
SPEED HEATERS



DESIGNED and priced for contractors, SPEED HEATERS will put you a lap ahead in bidding and give you a good profit in the bargain. Clip this ad to your letterhead and we'll send you the whole story.

B. F. STURTEVANT CO.
Hyde Park, Boston, Mass.
Branches in Principal Cities

Sturtevant

(See Domestic Engineering Plumbing and Heating Catalog)

TESTED J BRASS FITTINGS

JENKINS MFG. CO. BLOOMFIELD, N.J.

dren who cannot afford hair cuts, get this done and are also given combs, furnished by the Missouri division.

Feeling that we should have some philanthropic work to do, for without an objective we fail to justify the existance of our auxiliaries, your president is pleased to recommend to you the Needle Work Guild of America as a most worthy cause. This work was first recommended to us in Memphis at our National convention in 1928, by our president, Mrs. Hornbrook. Many of the auxiliaries have reported that much helpful work has been done in the guild during the year.

One state convention was attended by your president during the year; that of the Florida Master Plumbers Association and she was pleased to extend greetings to both the master plumbers and to the ladies of the Florida division, for the National auxiliary.

Your president wishes to thank the membership for the splendid co-operation given through the year by all the auxiliaries. Dues have been paid promptly. The Pittsburgh, Pa., auxiliary being the first to pay the new 25 cent per capita tax. The states of Michigan and Missouri sent detailed reports of the state convention meetings and almost every state complied with the request that names of new officers be sent to the National office without delay.

The president of the Florida division, Mrs. J. Pitt Simpson, issued a "Plumberette Bulletin" twice during the year, of which copies were sent to all auxiliaries in the state.

We report with great pleasure the addition of one new state division, the local auxiliaries in Connecticut having climbed onto the National Wagon; Mrs. A. C. Huches of Norwalk is president. Four locals have been organized during the year with the following membership:

	Members
Albany, N. Y., Mrs. J. O. Stapf, president.....	28
Webster Groves, Mo., Mrs. P. Gableman, president	6
Jackson, Mich., Mrs. Ruth Murray, president..	16
Wilmington, Del., Mrs. Geo. Barnett, president..	14
Total increase of membership.....	64

The following list of letters have been written by your president:

9 letters of sympathy.
58 letters to conventions.
50 letters to trade papers.
600 letters to individual members.

717 letters, with expenditures for stamps—$14.34.
4 telegrams amounting to $4.24.

Your president wishes to recommend: that you read the by-laws and that each auxiliary have a parliamentary committee and parliamentary drills.

Mrs. D. L. Simpson, Mrs. Percy R. Todd, Mrs. J. L. Evans, Mrs. T. J. Craven, Mrs. B. L. Tutt, all of Memphis; Mrs. J. J. Conroy, president of Memphis auxiliary. Photo taken at the convention of the Associated Master Plumbers of Tennessee

Cincinnati Auxiliary Holds Dinner

The Woman's Auxiliary to the Cincinnati (Ohio) Master Plumbers Association held a dinner at Bass Island on Thursday, July 10. The meeting followed and cards were played the remaining hours of the afternoon. Mrs. M. R. Manley donated a rookwood ash-tray which was won by Mrs. Edward Frank. There was a large attendance at this dinner. The August meeting is to be held at the home of Mrs. A. J. Murphy.

Jersey City Auxiliary Holds Outing

The first of a series of outings to be held during the summer months by the Jersey City auxiliary took place on July 10. A shore dinner at Tappan's, Sheepshead Bay, Long Island, was indeed a splendid start for the day. Following this the members visited the nationally famous amusement park, Coney Island, which proved an ideal spot for indulging in every imaginable sport. The members missed their president, Mrs. Kull, who could not attend owing to illness.

Hutchinson, Kans., Members Enjoy Picnic

The members of the Woman's Auxiliary to the Hutchinson, Kans., Master Plumbers Association, together with their families assembled at Carey park on June 19, to attend a picnic. Municipal pool was particularly inviting and many of the attendants took advantage of a refreshing swim. The main diversion of the men was baseball.

Those present were M. M. Stevens and family, C. E. Wilkie, Bert Ebersole and family, K. Sawyer and family, A. P. Riggs and family, Guy Holt; W. T. Polly. Mrs. Lenard, Misses Nell Fisk, Lucille Warren, Messrs. Harry Stevens and W. P. O'Malley.

Oakland County Auxiliary Entertained at Williams Bay

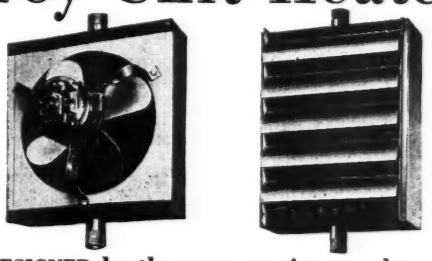
Members of the Women's Auxiliary to the Oakland County (Mich.) Master Plumbers' Association were recently entertained by Mrs. William Chatterson of Pontiac at her summer home at Williams Lake. Games and swimming were enjoyed and a delicious picnic luncheon was served at noon.

Denver Auxiliary Has Outing at Roundup Ranch

Mrs. Harvey Mellema entertained the ladies of the Denver Master Plumbers' Auxiliary, June 25, at the "Roundup Ranch" in Jarr Canon, about thirty-two miles from Denver. A bountiful repast was spread consisting of huge platters heaped with fried chicken, great bowls of mashed potatoes, green beans, peas, gravy, salad, carrots, cottage cheese, home made rolls with country butter, pitchers of buttermilk and sweet milk, blackberry pie, ice cream and two kinds of cake, watermelon and coffee.

Some of the Long Beach ladies attending the convention of the California Merchant Plumbers' Association

for overhead heating Kroy Unit Heaters



DESIGNED by the same engineers who pioneered the *Heat-Diffusing Unit* principle—Kroy Unit Heaters reflect the high quality materials and fine workmanship that characterize all York products.

They are equipped with Super-Fin coils. Consequently, they may be used with any steam pressure up to 200 pounds.

These Units are supplied in a variety of sizes and capacities—each fully guaranteed. Specifications and prices upon request. Branch offices in all principal cities.

YORK HEATING & VENTILATING CORP.
1573 Sansom Street, Philadelphia
Manufacturers of Heat-Diffusing Units, Air-Conditioning Units, Air-Cooling Units and Super-Fin Fan Blast Radiation.

KROY UNIT HEATER

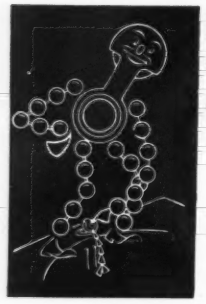
Keeps Water Clean . .

Water in the rock springs of nature gushes clean and sparkling from its source because it is carried through nature's own rock pipe line.

Cement is nothing more than rock and stone, converted into a form which suits man's needs better. Used as it is in Cement Lined Pipe, it assures elimination of metal contamination. Further, it protects pipe lines from corrosion.

Send us your piping layouts and let us show you how to apply Nature's Own Method to eliminate water troubles.

CEMENT LINED PIPE COMPANY
LYNN MASS.



Nothing like that happens when I'm around

THE next time you're out on a job look in the lavatory, tub or wash trays and see if you can find the stopper, if they are not chained they have travelled far away. Just dig into your kit, pull out a new stopper with Bead Chain attached, and put me to work. I'll bet that stopper will not roam.

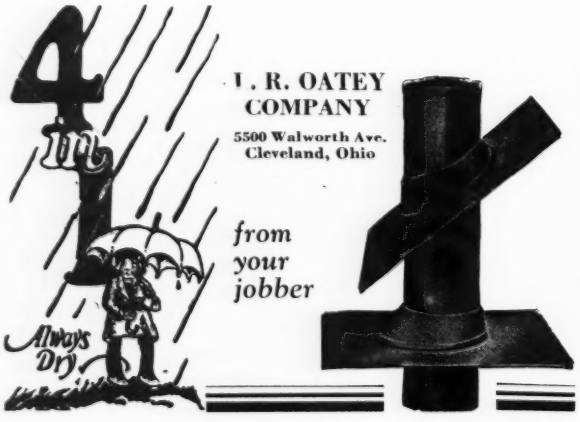
The Bead Chain Mfg. Company

BRIDGEPORT, CONNECTICUT

OATEY

Try an Oatey 4 in 1 Roof Flashing for your next job.

It's when you're up on the roof with it, that you'll appreciate its solid design and construction that fits extra heavy or standard size soil pipe with the least labor.



J. R. OATEY COMPANY
5500 Walworth Ave.
Cleveland, Ohio

from your jobber

After the ride in the cool mountain air the ladies did their part in showing the hostess how much they appreciated the delicious dinner.

The cabin was newly built and so unique as to deserve a description. The woodwork was of rough slabs, and the large living room and dining room were connected by two large openings. In each room was an enormous stone fireplace with bear heads mounted and protruding into each room. Deer's feet, six coyote skins, and one mountain sheep, were used in the decorations. After dinner, cards were played, with honors going to Mrs. Robert Demmer. Those in attendance were Mesdames William Hensler, R. A. Hurley, Robert Demmer, George Smith, Guy Stocking, Fred Samson, Frank Bordeau, Carl Thurston, J. Laverty, J. P. Brickey, Frank Hanlin, Clarence Cooper, Frank Welle, V. Kandorf, H. Mellema and a guest, Mrs. Cook.

Salt Lake City Auxiliary Has Outing

The members of the Ladies Auxiliary to the Salt Lake City, Utah, Association of Sanitary and Heating Engineers and their husbands celebrated with a party at the summer home of John H. Reeve on June 28. The affair was in the nature of an outing and a complimentary party to Mr. Reeve, one of the veteran retired plumbers of Salt Lake City, and whose son, John R. Reeve, is now an active master plumber. Card games were enjoyed by the ladies, while the masters pitched horseshoes. The games were followed by a dinner. A bonfire was enjoyed in the evening. Mrs. Henry H. Bockholt is president of the ladies' auxiliary and Mrs. Will Rees is secretary.

Oklahoma City Auxiliary Enjoys Outing

Mrs. R. C. DeLautre, secretary of the Oklahoma state auxiliary and of the Oklahoma City auxiliary, writes that many of the members are away on vacations, consequently no meeting of the local auxiliary has been held for some time. Some of the Oklahoma City members who are enjoying trips are: Mr. and Mrs. J. M. Anderson, who are vacationing in the Ozark mountains, and Mr. and Mrs. Henry Hanson, who are spending the summer on the west coast. Mr. and Mrs. J. J. Cosgrove have also been away on a trip.

The master plumbers recently entertained the auxiliary members and children with a big picnic at Lincoln Park. About eighty-five were present. Games and a golf tournament, of which Carl Kenzie was winner, occupied the time until a picnic supper was served.

Mansfield Auxiliary Plans Outing

The Mansfield, Ohio, Master Plumbers' Auxiliary met at a 12 o'clock dinner at the Staman Dinner House, Mifflin, Ohio, on Thursday, June 26, with ten ladies present. A bounteous meal of the season's best was served, and the table was attractively decorated with garden flowers. After a delightful stroll to the old mill of 1846, the president, Mrs. Charles Arting, called the meeting to order. It was decided to omit the July meeting. In August members and their families will have a pot luck supper at Walker's Lake. Mrs. Georgia Frietchen told the ladies some very good methods of cleaning rugs and carpets. The rest of the afternoon was spent in social conversation.

Death of Mrs. Ernest G. Ruedy

Mrs. Ernest G. Ruedy, wife of Ernest Ruedy, for many years a member of Ruedy Bros.' plumbing firm, Portland, Oregon, passed away June 25, at the age of 58. Mrs. Ruedy had been prominent in auxiliary work and had held various offices in the local group. She is survived by her widower and one son, Dr. V. E. Ruedy of Portland, and by two sisters in California.

New Trade Literature

Circular of J. P. Eustis Mfg. Co.

J. P. Eustis Mfg. Co. of Boston, Mass., has issued a circular describing its mirrors and medicine cabinets. The circular also describes the company's process for silvering mirrors.

Circular of Peerless Heater Co.

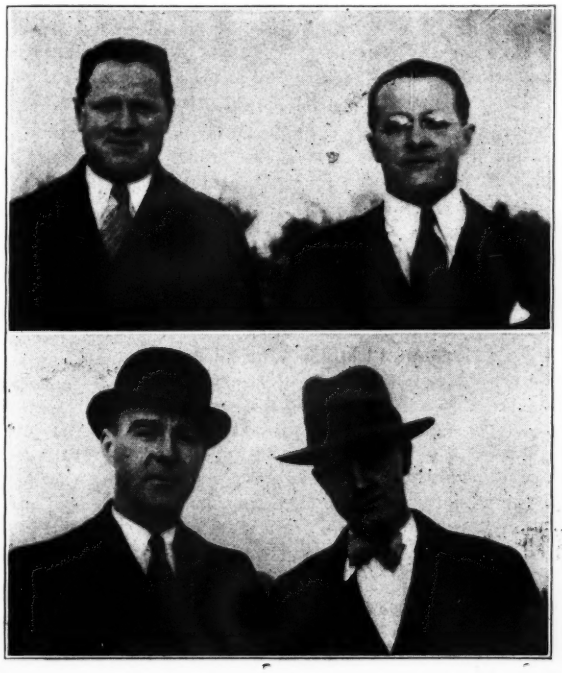
Peerless Heater Co., of Boyertown, Pa., is sending out a circular with the caption, "This Age of Miracles in Which We Live." The folder describes the company's gas boilers for automatic gas heating.

Circular of Foxboro Co.

Foxboro Co., of Foxboro, Mass., is sending out a circular describing its recorder-controllers for critical temperatures. Numerous illustrations show this instrument used in different processes, as in canning, oil refining, etc.

Presentation Book of Barber Gas Burner Co.

Barber Gas Burner Co., of Cleveland, Ohio, has just published a sales presentation book, containing its new No. 30 catalog, sales album or manual, consumers' literature and newspaper advertising copy. "More Gas" is the title of the presentation book, which features the company's automatic conversion gas burner. "The Barber Burner—Album of Gas Heating Facts" is the title of the sales manual, which stresses the convenience of gas as a fuel, by means of a series of illustrations. A technical description of the burner is also given, with numerous illustrations and diagrams in color. The manual furnishes information for the use of burner salesmen. Catalog No. 30, also contained in the presentation book, is devoted to burners for round and rectangular boilers. Useful fuel consumption information, specifications for vertical boilers, handy installation diagrams, etc., are given. A folder with the caption, "Why Not Enjoy Perfect Heat?"

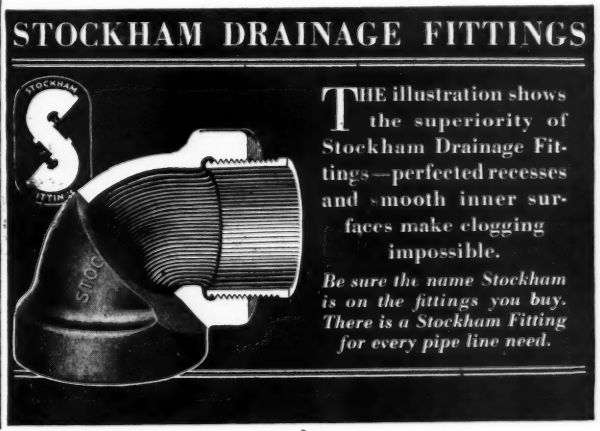


Top picture: Charles Jacobs and D. B. Jacobs, both of the Sterling Brass Co., Cleveland, Ohio. Bottom picture: John Milliken of Spang-Chalfant & Co., Inc.; Fred Wilson, Rhode Island Supply & Sprinkler Co., Providence. Photos taken at the convention of the Rhode Island Master Plumbers' Association

$75 to $295
C. A. LYNDS,
General Plumbing and Heating Company, Portland, Oregon, says:
"I have replaced other water heaters with the EverHot many times and find that I make a great number of friends by so doing."
EverHot Heater Co.
Detroit, Michigan
Branches and Sales Offices in 64 Cities in United States and Canada

PORCELAIN SHOWER HEAD
with Ball Joint
Adds beauty and individuality to your bathroom at a very slight increase in cost.
ASK YOUR JOBBER FOR No. 8230
J. B. WISE, INC., Watertown, N.Y.

How and Where to sell more HOFFMAN VALVES
To the selected prospects in your community
WRITE TODAY for this book
Hoffman's Business-Boosting Sales Campaign now ready for heating contractors who want profitable modernizing work this fall.
HOFFMAN SPECIALTY COMPANY, INC.
Dept. X42
Waterbury, Conn.


STOCKHAM DRAINAGE FITTINGS
THE illustration shows the superiority of Stockham Drainage Fittings—perfected recesses and smooth inner surfaces make clogging impossible.
Be sure the name Stockham is on the fittings you buy. There is a Stockham Fitting for every pipe line need.

36%	60%	4%
MATERIAL	LABOR	PROFIT
40%	51%	9%

How do You Spend Yours?

TWO contractors were handed $100 each to install valves on two identical jobs. Any remaining surplus would be theirs.

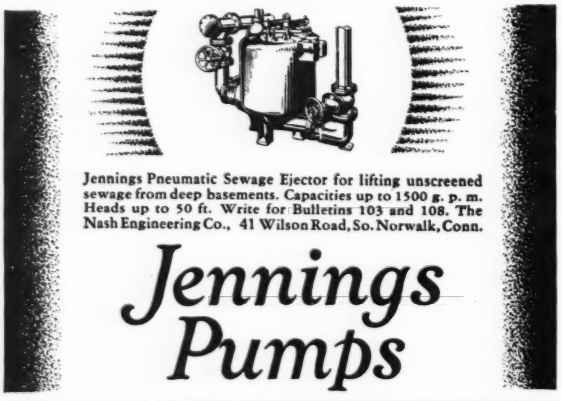
One decided to save money on materials. So he spent $36 for valves which cost him $60 to install. This left him a profit of $4.

The other decided that good materials would cost less to install so he spent $40 for O-B valves and they cost only $51 to install. This left him a profit of $9. How do you spend yours?

Ohio Brass valves are so designed and machined as to give "an extra profit in the make-up".

Ohio Brass Co.

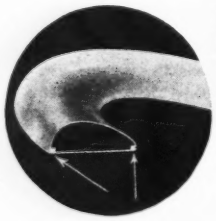
1189-V Mansfield, Ohio



Jennings Pneumatic Sewage Ejector for lifting unscreened sewage from deep basements. Capacities up to 1500 g. p. m. Heads up to 50 ft. Write for Bulletins 103 and 108. The Nash Engineering Co., 41 Wilson Road, So. Norwalk, Conn.

Jennings Pumps

"Two little White Squares"
give big sales advantage



See them in the cross-section. They form a reinforcing cushion of pyralin at the critical edges of the sheet-covered type seat, 9 times thicker and 800 percent stronger. A guarantee against ugly edge-cracking and splitting, they insure *permanent* beauty for the owner and positively end costly replacement service for the trade. Exclusive with Brunswick. Send for free cross-section and complete information of our sales proposition and co-operation. The Brunswick-Balke-Collender Co., Dept. F-27, 623 South Wabash Ave., Chicago.

Brunswick

WHITE SEATS

proofs of newspaper ads, etc., complete the sales presentation book.

Original Catalog of Stanley G. Flagg & Co., Inc.

Stanley G. Flagg & Co., Inc., Philadelphia, Pa., recently distributed a booklet in commemoration of the 76th anniversary of the founding of the company. The cover of the booklet, which is attractively arranged, contains a replica of a series of sales book entries dated April, 1855, and written by the hand of the founder, Stanley G. Flagg. On the inside back cover are views of the company's Philadelphia works in 1854 and of its Pottstown works in 1930. The body of the booklet is a reproduction of the first catalog issued by Stanley G. Flagg.

Circular of Sarco Co., Inc.

Sarco Co., Inc., of New York City, is distributing a circular describing its combination float and thermostatic steam trap, designed to provide a compact draining unit for large unit heaters, steam coils, hot water service tanks, etc., when using high pressure steam.

Folder of Decatur Pump Co.

Decatur Pump Co., of Decatur, Ill., is sending out a folder describing its home water systems, with super-turbine pumps. These water systems are designed for use in the suburban home and farm. A technical description of the pumps, and letters from users are included.

Circular of EverHot Heater Co.

EverHot Heater Co., of Detroit, Mich., has just issued a dealer's information sheet illustrating and describing its water heaters. Detailed diagrams show the automatic pilot control, the leakage by-pass and the thermostat.

Booklet of Standard Tank & Seat Co.

Standard Tank & Seat Co., of Camden, N. J., has issued a booklet describing how its toilet seats are made. Photographs show the company's experimental laboratory, preparation of the liquid finish for seats, the applying of the finish, etc. A series of charts shows the new building market and replacement market for white and colored seats, pointing out that out of 27,000,000 homes 9½ million homes do not have bathrooms, and out of the 17½ million with bathrooms, 10½ million have old-style seats.

Circular of Spearhead Boiler Plug, Inc.

Spearhead Boiler Plug, Inc., of Cleveland, Ohio, is distributing a circular describing its boiler repair plug. A display card for use in selling the plug is featured.

Catalog of Safety Gas Main Stopper Co.

Safety Gas Main Stopper Co. of Brooklyn, N. Y., has just issued a catalog listing, among other things, a cylindrical stopper for gas, oil, water and drain pipes. Information as to the use of this stopper in water mains and in oil lines is given.

Circulars of Motor Wheel Corporation

Motor Wheel Corporation of Lansing, Mich., is sending out a circular describing its oil-burning automatic water heater. A series of colored illustrations shows the advantages of a plentiful supply of hot water. Several sectional illustrations of the burner are given. Another folder describes an oil burner for use with a warm air furnace.

Circular About Oil Heater

Super Oil Heator Co., Pawtucket, R. I., is distributing a circular illustrating its oil heater designed exclusively for heating homes. A large illustration in colors is shown.

Data Book of James B. Clow & Sons

James B. Clow & Sons, Chicago, have published an architects' and heating engineers' data book consisting of information about the concern's gas steam radiators, their construction and operation. Diagrams and rough-

ing-in measurements are given. Methods of running vent stacks are also shown in detail, and specifications for the installation of tile vent stacks are also given. Many other technical data are included. "Heat with Gas" is the title of a booklet also issued by James B. Clow & Sons. Illustrations of numerous stores, apartments, residences, churches, etc., which use this concern's gas steam radiators are given.

Circular of Fretz-Moon Tube Co.

Fretz-Moon Tube Co., Inc., of Butler, Pa., is distributing a circular featuring its black and galvanized pipe and couplings. A table of weights and diameters is included.

Copper Pipe for Water Supply Service

Revere Copper and Brass, Inc., of Rome, N. Y., has just issued a booklet with the title, "Copper Pipe for Water Supply Service." The booklet describes how the pipe is used, the method of making joints by sawing off and reaming the ends of pipes, to be joined, slipping one part of the fitting over the pipe, bringing it into place, and flanging the pipe over the seat of the fitting by means of a special flanging tool, is also described.

Top row: Frank Mosher, E. H. Fleming, J. J. McLeod, Al. Somerton. Middle row: H. K. Browning, Robert Allmon and Fred Oelschlagel. Bottom row: C. J. McCarthy, Walter Mead, Emile Heymans and H. Porter Wilson. Photos taken at the April meet of the Plumbing and Heating Club of San Francisco

The Hotstream HEATS IN A HURRY TRADE MARK REG. WATER-HEATER

KEROSENE HEATERS—WICK BURNER TYPE

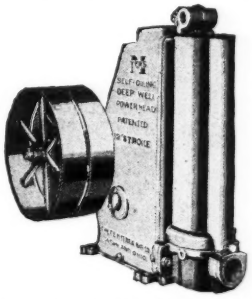
Quadruple coils of copper and the patented Kerogas Burner (Hotstream is the only Water Heater licensed to use it) insure the greatest efficiency.

Lights instantly at the touch of a match—is noiseless, sootless and extremely economical.

Made in 3 sizes—write for complete information.

THE HOTSTREAM HEATER COMPANY
7800 Finney Ave. "Makers of Heaters that Heat" Cleveland, Ohio

MYERS SELF-OILING POWER PUMPS



Reach out for new pump and water system business with the Myers line of Power Pumps and Water Systems. 200 to 10,000 gallons of water per hour. Unquestionably, this wide capacity range is a sound business asset for those who are serving their trade with power water facilities to meet individual customer needs. Write or wire.

THE F. E. MYERS & BRO. CO., ASHLAND, OHIO
Pumps—Water Systems—Hay Tools—Door Hangers

INCREASE YOUR PROFITS

There's a good margin for you
And satisfied customers too!

Sell Dole Air & Vacuum Valves

Write for full information.

How it looks inside Dole 2-B Vacuum Valves

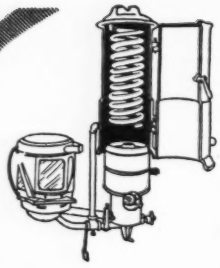
THE DOLE VALVE COMPANY 1913 Carroll Ave., Chicago

only $35.95 *plus installation*

—this fast selling, over-the-counter, *clock-equipped,* quality regulator

Minneapolis-Honeywell Regulator Co.,
Executive Offices: 2801 Fourth Ave. So.,
MINNEAPOLIS, MINN.

Jewell Junior TEMPERATURE REGULATOR *Completes* The Jewell Line



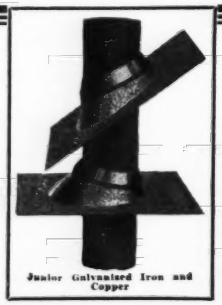
Ask your Jobber or write us for full information about

OHIO *Kerosene* HEATERS

Ohio Kerosene Heaters have a reputation to live up to . . . . . And they always make good.

OHIO HEATER CO.
Columbus, Ohio, U. S. A.

Junior Galvanized and Copper Flashing



Twenty-four gauge prime galvanized sheets and 14 oz. copper are used for making the Junior Adjustable Roof Flashing.

They are drawn from single sheets having no seam at the base and a heavy pure lead calking collar is moulded to the upper end of the sleeve.

From your jobber

SIMPLEX MANUFACTURING COMPANY
2644-46 N. Ashland Ave. Chicago, Illinois

Why Milwaukee's prices are lower—

"Junior Lines" have appeared. This is the last resort by some manufacturers to meet the demand of the dealer who is dominated by "close buyers." Milwaukee Flush Valve Co. are enabled to offer acceptable low prices without the aid of an inferior "Junior Line," because they have simplified their products, eliminated obsolete machinery and adopted modern production methods.

JUDELL

MILWAUKEE FLUSH VALVE CO.
Dept. D 111 Milwaukee, Wisconsin, U. S. A.

FLOOD CONTROL! *for every basement*

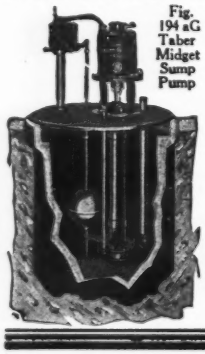


Fig. 194 aG Taber Midget Sump Pump

New LOW PRICES now remove the only possible objection to Taber Sump Pumps.

A Taber Sump Pump installation is Positive Automatic Relief from flooded conditions in basements.

Once installed, Taber Sump Pumps need no servicing . . . thus they will save you money.

Write for description and prices. See Page 923, Domestic Engineering Plumbing and Heating Catalog.

TABER
TABER PUMP CO. *Est. 1859*
290 Elm Street, Buffalo, New York

Pipelines Connected by L Y T

TO HELP BUSINESS ALONG

A number of weeks back we published some suggestions in this column for speeding up business. We suggested a slogan: "Smash Things Up!" Among the things to be smashed we suggested iron Kellys to help the hatters, restaurant dishes to help the makers of dishes, and so on. Now comes the following, which applies to our own industry:

Oh, Editor, oh Editor, you force me to a "squeak"
When you failed to mention, "a smash-up fixture week"
Of old plumbing fixtures in our line of supplies,
That should sweep over the country from,—well, to the skies.

Bust up the old toilets, including old tanks
And replace them all from the "UP TO DATE" ranks.
Use syphon jet closets, both colored and white
Cheer up the old homestead, it's good for your sight.

Install them with flanges of good heavy brass,
Which makes a connection that keeps back the gas.
Break up the old seats—they're out-of-date, too,
They crack and they split and all hold a "bug zoo."

Get sheet celluloid seats—there's lots of good makes
That "stay put," when put on, with no "replacing headaches."
A smash-up week is needed, and it's needed right now
To give plumbers work and their families some chow.

A tank's easily busted—just give it a good whack
Up near the top lever, and you'll see it crack.
I know, for I've done it for years now gone by
And when you get the knack, it's as easy as pie.

Old marble slab lavvies, oh say, they're a joke;
Just drop something heavy in the bowl and it's broke.
Don't think it a shame to break old antique stuff,
They're breeders of vermin—keep the place looking tough.

Pull out the old sink that's been in since the war,
(I don't mean the "Big Scrap") but forty-nine years before,
That the blacksmith put in, along with the pump
Which tried grandad's temper and on his back put a hump.

There are millions of faucets, and old bath tubs too
That the world wouldn't miss if some smashing you do,
The factories need orders, the plumbers need work,
So pull out the old stuff where the "woozy bugs" lurk.

We hold back on progress, while the old junk stays,
Just go break it up, you'll find that it pays.
Thus friends of the craft, I am through with my "squeak"
I am yours very truly for "Smash-up fixture week."

H. R. Kuehner,
Laurel Springs, N. J.

Note:—Whatever you do, Do it Now, but don't shirk us,
And don't break them intentionally, but accidently on purpose.

Gumbo: "I'm the happiest man alive. I've got the finest wife in the country."

Mudd: "Yeah, that does make a man happy, having his wife in the country." —L. L. Leighton.

They have put a young lady's face on the new twenty-five cent pieces. The young lady was selected as being "the highest type of American womanhood." And the best they could do for her was a twenty-five-cent piece!

L. Y. T.

Bath a Day Movement

We have a letter from John B. Plut of the Valley Plumbing & Heating Co., Valley City, N. D., requesting a supply of copies of "The Story of the Bath" to be used at a "Plumber's Day" meeting of his local Rotary club.

This use of the booklet which has done so much for the plumbing industry has become increasingly popular. These civic club meetings, offering the men in so many different lines of business to tell something of their service to the community, present an especially fine opportunity for publicity.

But alert members realize that something ought to be done to keep the matter fresh in the minds of the members present. Hence the distribution of copies of "The Story of the Bath" so that each man present may take home one of them and read it with his family at his leisure, and thus remember for a longer time the information given him on "Plumber's Day."

Perhaps you have never read "The Story of the Bath." If not, write DOMESTIC ENGINEERING, 1900 Prairie avenue, Chicago, Ill., for a complimentary copy, and for details of the use of this fascinating booklet at meetings of your local Kiwanis, Rotary, Lion, or other similar organization.

Little Sentences That Sell

Write one of these BLACK BOARD EPIGRAMS on your window or bulletin board each day. Many master plumbers and heating contractors find them real business getters.

Our time payment plan makes buying painless.

* * *

Don't wait for winter to remind you that your heater needs repairing.

* * *

Your comfort is not merely a selfish interest of your own: it has great social value.

* * *

The bathtub is a mark of civilization.

* * *

Good taste has as much to do with the bathroom as with a woman's clothes.

* * *

The assistance we get is seldom satisfactory. The best way is not to need it.

* * *

Cutting ice out of the lake in winter time may have been picturesque, but the automatic refrigerator is more convenient.

* * *

Old-fashioned equipment makes the kitchen a prison for the housewife.

* * *

Sunday is the day of rest. Most of us get a good rest looking at the billboards while stalled in the traffic.

* * *

Time is money; let us save money for you by equipping your home with time savers.

* * *

A bath a day may not make you wealthier but it will make you healthier.

* * *

If you don't like to shovel coal and carry ashes use oil heat.

◆

Indianapolis, Ind.—The Hawkins Bros. Plumbing Shop has been moved from 512 to 538 Indiana avenue.

Air-Tight Steel Tank Co.
PITTSBURGH, PA.

TANKS FOR: High pressure gas and air storage—Pneumatic water systems—Gasoline and oil storage—Oil burning equipment—Open top—Welded. ATSCO Genuine Copper Brazed tanks for high pressure—the tightest, safest, strongest tank it is possible to construct by any known process. A.S.M.E. code tanks.

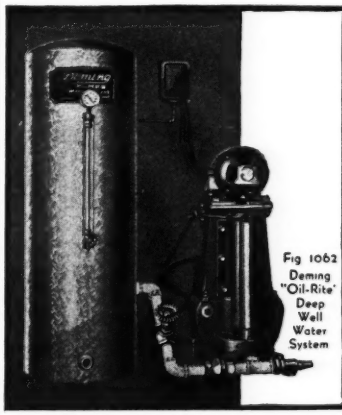


Fig 1062 Deming "Oil-Rite" Deep Well Water System

DEMING
WATER SYSTEMS
WRITE for Water System Catalog L, which gives complete information on Deming Shallow and Deep Well Water Systems.
THE DEMING CO.
SALEM, OHIO • Est. 1880

NEVER-SPLIT AND EVERNU
QUALITY TOILET SEATS
Sheet Covered — Hard Rubber — Varnished — Sprayed — All Models
All Colors — All Hinges — Patented and Guaranteed
"NEVER-SPLIT" (Hidden Screw Construction) and "EVERNU" (Hard Rubber) Seats are approved by leading architects, builders and dealers everywhere. Get prices from your jobber. Write us for new catalog, cross sections and sales helps.
NEVER-SPLIT SEAT CO., Evansville, Ind., U. S. A.

4'x5' Oval Float

NO-SOL COPPER FLOATS
No-Sol Floats incorporate all features necessary to the satisfactory performance of a tank float.
Each float is individually tested and guaranteed.

5' Round Float

The AYLING & REICHERT CO.
3047 N. Erie St. Toledo, Ohio

Business Changes and Ventures

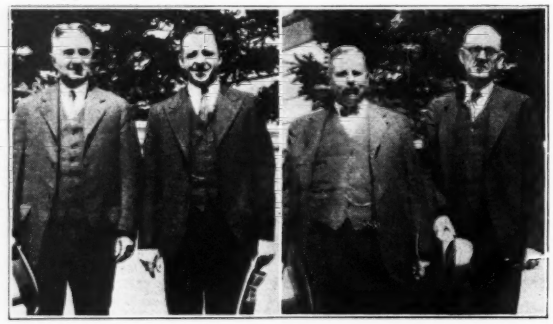
Business Changes

San Francisco, Calif.—Hayes & Garrick have moved their plumbing and heating establishment from 505 to 441 Divisadero.

Kansas City, Mo.—The Grinnell Heating Co., plumbing and heating contractors, have moved their offices from 1016 Baltimore avenue to 414 Fairfax building, 11th and Baltimore avenue.

Watertown, S. D.—The Luck Plumbing Co. has moved its plumbing and heating business to new and larger quarters at 21 South Broadway, where an elaborate display of plumbing goods is to be installed.

Beloit, Wis.—New show rooms of the Davis Plumbing Co., 424 State street, have been formally opened. A large show window facing one of the main streets of



Left to right: R. C. Arno'd, Bristol; Howard Bryant, Bridgeport; Howard Knapp, Sound Beach; S. Miller, Norwalk. Photos taken at the convention of the Connecticut State Association of Master Plumbers

Beloit features an interesting model kitchen display, including all necessary equipment, and in the showroom itself three model bathrooms are shown, as well as separate displays of gas ranges, electric refrigerators and other items.

Madelia, Minn.—O. J. Schultz, formerly engaged in the plumbing and heating business in Cokato, Minn., has just opened up a new plumbing and heating establishment in this city.

San Francisco, Calif.—Seipp & Hoges, engaged in the plumbing and heating business at 942 Pacific street, have moved to 948 Pacific street.

New Ventures

Portland, Ore.—Northwestern Plumbing and Heating Co. has been incorporated for $5,000 by Fred G. Yungeberg, Emma Yungeberg and D. L. Conley.

Pleasantville, N. J.—The P. K. Plumbing and Heating Co. has been organized and incorporated, with a capital of $10,000, to establish and operate a plumbing and heating contracting business. Emory J. Kiess, Atlantic City, attorney, represents the new firm.

Brooklyn, N. Y.—With a nominal capital of $1,000, the Gates Heating Co. has been chartered, to establish and operate a heating contracting business in the Gates avenue district. The new firm is represented by E. R. Mead, 50 Broadway, New York City.

Pelham, N. Y.—The Sunbeam Engineering Corp. has been organized and incorporated, with a capital of $10,000, to establish and operate a heating and ventilating engineering and contracting business. The new concern is represented by H. Sammet, 1440 Broadway, New York City.

Des Moines, Ia.—The Peitzman Plumbing Co. has opened for business at 220 West Fourth street. John H. Peitzman is head of the concern.

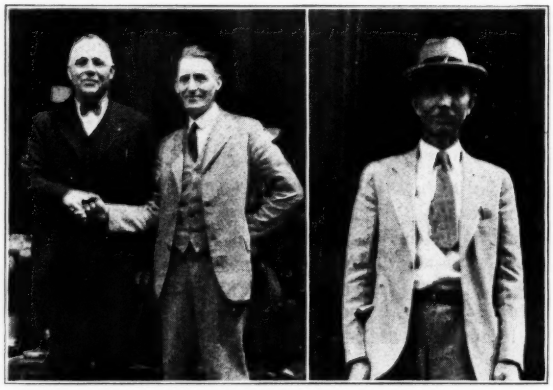
Brooklyn, N. Y.—Edward LaChase and associates have organized and incorporated the firm of Edward LaChase, Inc., with a capital of $1,000, to establish and operate a plumbing contracting business. The new concern is represented by M. M. Thurshen, 16 Court street.

Los Angeles, Calif.—The Angelus Mesa Plumbing Shop has been opened at 5426 Angelus Mesa drive, under the management of George M. Elmquist.

San Francisco, Calif.—John H. Carberry has engaged in the plumbing and heating business at 112 Gough street.

Los Angeles, Calif.—Elmer L. Stage, 4130 Duquesne avenue, Culver City, Calif., has engaged in the plumbing and heating contracting business at 2015 Westwood boulevard, this city.

New York City—The Super Plumbing Engineering Corporation has been organized and incorporated, with a



Left to right: A. Thompson, Mt. Vernon; C. D. Farquharson, secretary of Bellingham association; Carl E. Skaer, secretary of Spokane association. Photos taken at the convention of the Washington State Association of Master Plumbers

capital of $10,000, to establish and operate a plumbing contracting business. The new firm is represented by B. R. Harriman, 405 Lexington avenue.

New York City—The Donis Plumbing Company has been organized and incorporated with a capital of $5,000, to establish and operate a plumbing contracting and engineering business in the Bronx. M. M. Frank, 1910 Arthur avenue, the Bronx, represents the new concern.

New York City—With a capital of $10,000 the Allen Plumbing and Heating Company has been organized and incorporated by E. L. Allen and associates, to establish and operate a plumbing and heating engineering and contracting business in the Bronx. The new firm is represented by James Cohen, 660 Madison avenue.

Jamaica, N. Y.—The firm of Herman Kincher, Inc., has

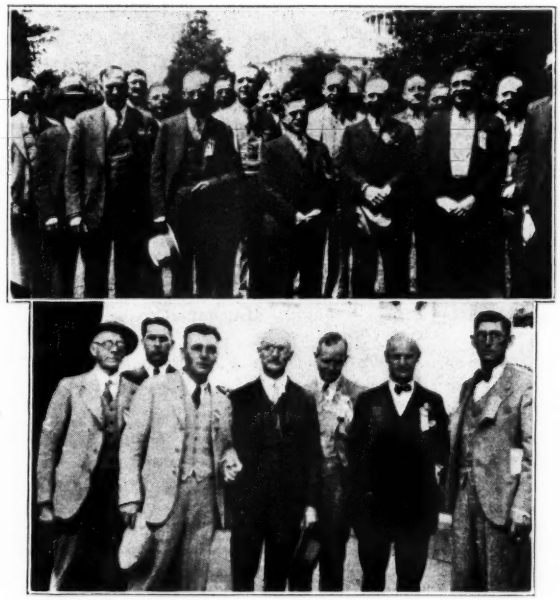
been organized and incorporated, with a capital of $10,000, to establish and operate a plumbing, engineering and contracting business.

Baltimore, Md.—The Morrell Park Plumbing & Heating Co., Inc., has been chartered by George E. Kuhl, Jr., Robert Grayson, associates, and has engaged in business at 2618 Washington boulevard.

Jamaica, N. Y.—The Whalen Plumbing Company has been organized and incorporated, with a capital of $5,000, to establish and operate a plumbing contracting business. G. A. Nagle, local attorney, represents the new concern.

New York City—The See and Bee Plumbing and Heating Company has been organized and incorporated, with a capital of $1,000, to establish and operate a plumbing and heating contracting and engineering business. The new concern is represented by F. S. Efron, 277 Broadway.

Beloit, Wis.—The Davis Plumbing and Heating Company has been incorporated to conduct a plumbing, heating and sheet metal business. The firm is capitalized with n. p. v. 100 shares preferred stock at $100 each. J. Thomas, F. Dazey and M. H. Plumb are the incorporators.



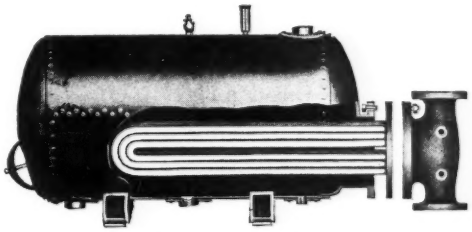
Top row: Part of the Long Beach delegation. Bottom row: J. Neuerburg of Los Angeles, B. B. Garrett of San Pedro, G. Von Bank and H. H. Wister of Wilmington, Ray N. Batterson of Pasadena, H. A. Sonntag of Los Angeles and L. R. Pratt of Coachella. Photos taken at the convention of the California Merchant Plumbers' Association

New York City—The Consolidated Plumbing and Heating Corp. has been organized and incorporated, with a capital of $10,000, to establish and operate a plumbing and heating contracting and engineering business. The new concern is represented by Hyman and Hyman, 103 East 125th street.

Buffalo, N. Y.—James E. Reid has organized the James E. Reid Heating and Plumbing Co., with headquarters at 4036 Bailey avenue, where a modern plumbing and heating engineering and contracting business has been established.

New York City—The Philmore Plumbing Corp. has been chartered, with a capital of $10,000, to establish and operate a plumbing business in the Bronx. M. R. Chase, 51 Chambers street, represents the new concern.

A NEW STORAGE HEATER
IN STANDARD SIZES
ready for immediate delivery
NATIONAL
RED HEAD HEATERS



Equipped with U-Bend heating element of Anaconda Copper. Steel Tank. Improved flanged T cover gives unrestricted flow area for entering steam. Tested to 100 lb. working pressure, 150 lb. hydrostatic pressure. A well built heater, economical in operation, designed for industrial plants, laundries, apartments, schools, clubs, hotels, etc. Just consult the chart in bulletin 61. We do the engineering. Write for bulletin 61 and prices.

Makers of Heat Exchangers, Coolers, Oil Separators, Coils and Bends.

The National Pipe Bending Co.
Est. 1883
174-H River St., New Haven, Conn.
Boston New York Philadelphia

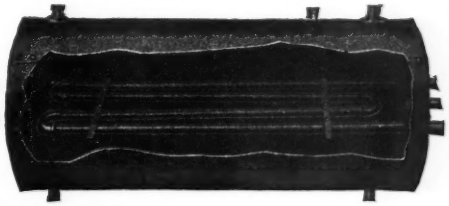
McQUAY
Modern
RADIATORS

Made in a host of capacities and dimensions, in Cabinet and completely Concealed types, there is a McQuay Radiator for every heating need.

They provide the ideal combination of a radiator that is truly attractive with an ability to heat quicker and more efficiently.

Sold only through recognized Heating Contractors
McQUAY RADIATOR CORPORATION, CHICAGO

PNEUMATIC—STORAGE—SPECIAL
UNCONDITIONALLY GUARANTEED
STEEL TANKS



ARROW Black or Galvanized
TRADE MARK
THE NOVELTY STEAM BOILER WORKS COMPANY
Clare and Kloman Streets Baltimore, Maryland

PAINE

Pressed Steel Adjustable Radiator Bracket

Very simple in construction, having only three parts.

Quickly assembled and installed.

Furnished in 10-in. and 16-in. lengths.

Each bracket is in a container, properly labelled, and includes a ¼-in. Expansion Shell, a ¼-in. Lag Screw, making it a complete unit, ready for installation in any kind of material.

Neat in appearance, efficient in performance, and inexpensive in price.

THE PAINE COMPANY

2949-2951 Carroll Ave., Chicago

79 Barclay St., New York

Ask your jobber for them

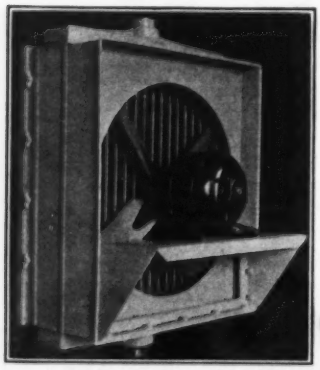
We'll Help You Sell Them!

Business conditions are changing... *have changed.* Drug stores are fast becoming restaurants. Cigar stores are being converted into soda fountains. Competition is so keen . . . today . . . that "side-lines" must be added if one wishes to remain in business. Armstrong Radiator Shields and Enclosures offer you an extra source of profit. Our tried-and-tested plan offers you a practical method of obtaining this profit. Your application for details regarding our Dealer Sales Franchise is invited. Write us today.

The Thomas & Armstrong Co. (*Radiator Shield Division*), London, Ohio

Armstrong Radiator Shields & Enclosures

DIXIE UNIT HEATERS



Specify and install the unit heater with the patented compression coupling which a five ton pull could not break.

Write for the details of the Dixie Unit Heater

THE DIXIE BLOWER COMPANY

2351 W. 37th Pl., Chicago

You wouldn't think of missing your daily paper « « «

yet it does not begin to help you as your business paper does . . . so why not spend a minute to send in your subscription. You will soon realize the tremendous help you have been doing without.

DOMESTIC ENGINEERING

1900 PRAIRIE AVENUE « « CHICAGO

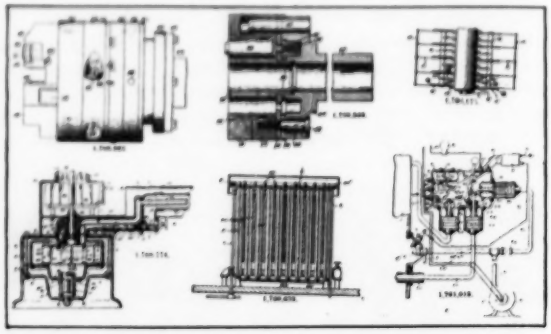
PATENTS

Heating Department

1,760,567. Die Head. Harry T. Shearer, Waynesboro, Pa., assignor to Landis Machine Company, Waynesboro, Pa., a Corporation of Pennsylvania.

1,760,568. Die Head. Harry T. Shearer, Waynesboro, Pa., assignor to Landis Machine Company, Waynesboro, Pa., a Corporation of Pennsylvania.

1,760,175. Refrigerating Apparatus. Sylvester M. Schweller, Dayton, Ohio, assignor, by mesne assignments, to Frigidaire Corporation, a Corporation of Delaware.



1,760,633. Humidifier. Robert A. Crawford, Chamberlain, S. Dak.

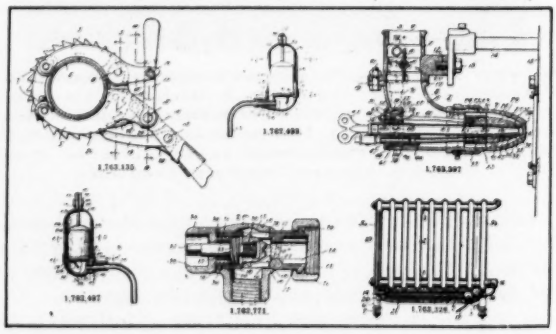
1,760,774. Fuel-Oil Burner. William G. Peters, Peoria, Ill.

1,761,018. Control System for Oil Burners. Dorr R. Martin, Detroit, Mich.

1,763,135. Pipe Wrench. Luther Cox, Smackover, Ark.

1,762,488. Air Valve. John F. Schylander, Chicago, Ill., assignor to Jas. P. Marsh & Company, Chicago, Ill., a Corporation of Illinois.

1,763,387. Oil Burner. George F. Beach, Philadelphia, Pa., assignor, by mesne assignments, to Ryan, Scully & Company, Philadelphia, Pa., a Corporation of Delaware.



1,762,487. Air Valve. Walter J. Rudolph, Chicago, Ill., assignor to Jas. P. Marsh & Company, Chicago, Ill., a Corporation of Illinois.

1,762,771. Pipe Fitting. Grover S. Eble, Belle Harbor, N. Y.

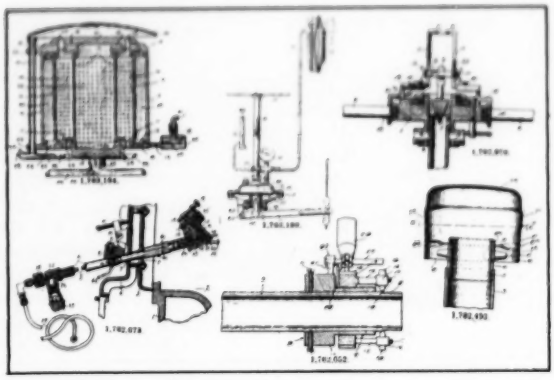
1,763,328. Electric Radiator. William H. Robinson, Buffalo, N. Y., assignor to Thermo Electric Research Corporation, Buffalo, N. Y., a Corporation of New York.

1,763,164. Oil Burner. Michael A. S. Lavigne, Winsted, Conn., assignor of seventeen per cent to Amin M. Khoury, Burlington, Vt.

1,763,180. Thermostatic Regulator. Fred W. Powers, Chicago, Ill., assignor to Powers Regulator Company, Chicago, Ill., a Corporation of Illinois.

1,762,670. Reamer for Pipe Threaders. Emil T. Siesko, Nanticoke, Pa.

1,762,678. Oil Burner. Artis Chester Bryan, Syracuse, N. Y.



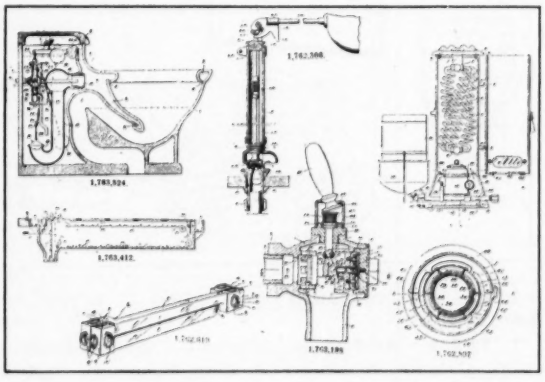
1,762,652. Pipe Die. Luther Cox, Smackover, Ark.

1,762,493. Air Cleaner. Roy E. Watrous, Evanston, Ill.

Plumbing Department

1,763,524. Closet. William C. H. Joiner, Jr., Camden, N. J.

1,762,306. Ball Cock. Robert H. Mueller, Decatur, Ill., assignor to Mueller Co., Decatur, Ill., a Corporation of Illinois.



1,763,412. Sewage-Disposal Apparatus. Marcus B. Tark, Philadelphia, Pa., assignor to Link-Belt Company, Chicago, Ill., a Corporation of Illinois.

1,762,619. Cross-Over Connections for Back-to-Back Plumbing Fixtures. Wells S. Fleming, Portland, Oreg.

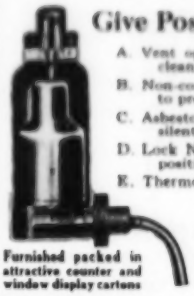
1,763,188. Flushing Valve. Ben B. Thomas and Gunner O. Forsberg, Portland, Oreg.

1,762,897. Air Inlet Device for Oil Burners. Peter S. Sinclair, Holyoke, Mass., assignor to Holyoke Heater Company, Holyoke, Mass., a Corporation of Massachusetts.

1,763,706. Water-System Pumping Apparatus. Stanley H. Hobson, Rockford, Ill., assignor to Geo. D. Roper Corporation, Rockford, Ill., a Corporation of Illinois.

1,763,783. Zeolite Water Softener. George F. Hodkinson, Philadelphia, Pa., assignor to The Permutit Company, New York, N. Y., a Corporation of Delaware.

KEENEY
Air Valves
Give Positive Performance



A. Vent opening enclosed by cap insures clean Valve.
B. Non-corrosive pin has bullet shaped point to prevent sticking.
C. Asbestos muffler helps make Valve more silent.
D. Lock Nut always holds Valve in upright position.
E. Thermostatic Float.
F. Threaded hexagonal shank makes solid rest for Float.
G. Syphon Pipe placed low drains all the water.

Furnished packed in attractive counter and window display cartons

THE KEENEY MFG. CO.
Newington, Conn.

No Corrosion or Rust

The slightly different shape of the Federal Float makes it especially adaptable for tanks where heavy service is encountered. A stronger spud and an expansive rubber washer joint make it better for those jobs other than homes.

FROM YOUR JOBBER

THE REICHERT FLOAT & MFG. COMPANY
2238 Smead Ave., Toledo, Ohio

The HOOSIER Simplifies
Deep Well Pumping

The Hoosier Deep Well Pump is easily adapted to any deep well pumping job. It is Timken Bearing-equipped, completely enclosed and positively lubricated. The Hoosier working head CAN'T cause stuffing box trouble. And a heavy coating of pure zinc, applied inside and out by the famous GalVAZink Process, permanently protects it from rust. In fact, the Hoosier is built throughout to pump year after year with minimum expense and trouble.

You can recommend and install the Hoosier on every job, for it is built in several sizes and uses any type of power. Let us send complete information about our EXCLUSIVE sales franchise. Write TODAY.

FLINT & WALLING MFG. CO.,
76 OAK ST. KENDALLVILLE, IND.

Sensible Rates

Garage Attached

The Breakers

— ON THE OCEAN FRONT —

Atlantic City — N. J.

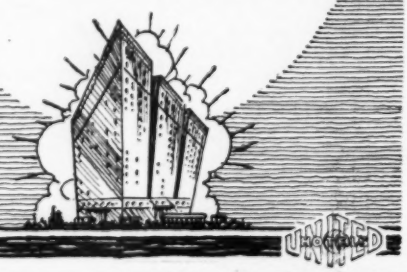
Modern in construction, luxurious in appointments and convenient to all piers and amusements.

THE
BENJAMIN
FRANKLIN
PHILADELPHIA
Chestnut at Ninth Street

Unquestionably the ideal hotel in Philadelphia. Attentive service, enjoyable environment, traditional hospitality and above all, maximum comfort.

Twelve hundred rooms, each with bath
Rates commence at $4.00

HORACE LLLAND WIGGINS, Managing Director



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Jno. S. Brannin, Pres. & Gen. Mgr.

Stop at the Hotel Havlin in Cincinnati and enjoy all the comforts of home. Spacious, well-ventilated rooms, courteous service and hospitality of the highest degree.

RATES:
Room with running water, $2.00.
Single with bath, $2.50 to $5.00
Double with bath, $4.00 to $7.00

Special Group Rates

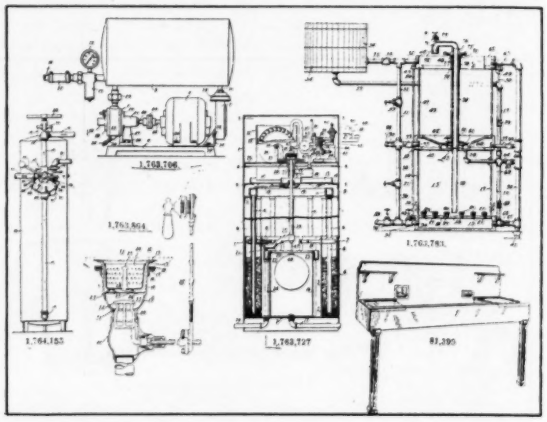
GARAGE SERVICE

HOTEL HAVLIN

CINCINNATI, OHIO

1,764,155. Water Softener. Lee G. Daniels, Rockford, Ill.

1,763,864. Sink Strainer. Elmer K. Robertson, Louisville, Ky., assignor to Standard Sanitary Manufacturing Company, a Corporation of Pennsylvania.



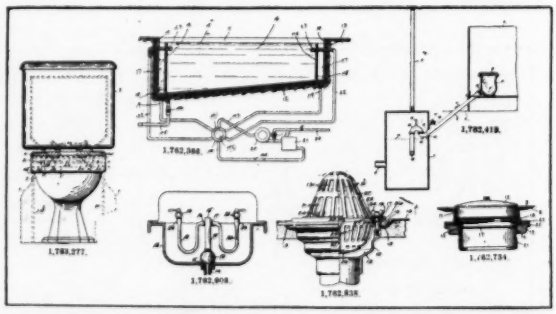
1,763,727. Water-Softening Apparatus. Edward T. Turner, Dayton, Ohio.

81,399. Sink or Similar Article. Albert F. Premo, Springfield, Mass.

1,763,277. Water-Closet Combination. Bert O. Tilden, Trenton, N. J., assignor to B. O. T. Mfg. Co., Trenton, N. J., a Corporation of New Jersey.

1,762,366. Process of and Apparatus for Warming and Cleaning Pools. Skiles E. Test, Indianapolis, Ind.

1,762,419. Sewage-Disposal Fixtures. Walter D. Pettis, Oxford, Miss.



1,762,608. Drainpipe Cleaner. Bert L. Brown, Long Beach, Calif.

1,762,838. Roof Drain. Reginald C. Shand, Piedmont, Calif., assignor to Shand & Jurs Company, Berkeley, Calif., a Copartnership consisting of Reginald C. Shand and Albert E. Jurs.

1,762,734. Waste Fitting for Sinks or the Like. Erastus G. Oakley, Southport, Conn., assignor to Bridgeport Brass Company, Bridgeport, Conn.

◆

San Francisco, Cal.—George A. Ware, who has been engaged in the plumbing and heating business at 6427 Geary street, has moved to 5326 Geary street.

Hubbard, Ia.—Fred Waterman has sold a half interest in his plumbing, heating and hardware business to Carl Olsen, of Ellsworth, Ia.

Drayton Plains, Mich.—The Drayton Plains Plumbing & Heating Co. has been chartered with an authorized capital stock of $5,000, all of which was subscribed, and $3,500 of which was paid in.

8 cents for each word including heading and address. Count seven words for keyed address. Minimum $2.00 for each insertion.

CLASSIFIED ADVERTISING

One inch $4.00. Cash must accompany order. Copy should reach us eight days in advance of publication date.

Situations Open

Salesman—to sell a low-priced all-electric Heat Regulator for steam, vapor, hot water and warm air furnaces to the heating trade. Liberal commission. Product of an old reliable manufacturer of temperature regulating specialties. State age and experience. Address Key 531, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

Increased activity in rapidly expanding markets has made it necessary to increase the number of our representatives. Sales engineers experienced in these or similar lines are invited to write. If your territory is open, this may mean a valuable connection.
JAS. P. MARSH & COMPANY
Division of Commercial Instrument Corporation
2073 Southport Avenue, Chicago, Ill.

REPRESENTATIVES WANTED IN leading cities to handle highest grade line of radiator shields and radiator cabinets. Our representatives earn $500.00 to $1,000.00 per month the year around, above expenses. Full selling plan furnished. Address Key 256, "Domestic Engineering," 1900 Prairie Ave., Chicago.

WONDERFUL MONEY-MAKING EXclusive or sideline proposition for salesmen calling on plumbing dealers. Write us today. KOIL-LES HEATER COMPANY, Geneva, Illinois.

EXPERIENCED BOILER AND RADIator salesman wanted for Pittsburgh district. State age, references, and experience. All replies will be held in confidence. A complete stock of radiators and boilers is carried at our Pittsburgh warehouse. FEDERAL RADIATOR COMPANY, Zanesville, Ohio.

For Sale

FOR SALE: ONE (1) STOEVER PIPE Threading Machine, ¾ inch to 4 inches with motor. One (1) Stoever Pipe Threading Machine, 1¼ inches to 6 inches without motor. Machines in good condition. Address P. O. Box 964, Lancaster, Penna.

Situations Wanted

PLUMBER — FIRST CLASS, ALL around mechanic wants work in South, preferably Florida. Family now living in Central Florida. Address Key 530, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

POSITION WANTED: MAN WITH twenty years' experience in plumbing and heating would like position as working Partner, Estimator or Foreman. Best of references. Address Key 529, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

SALESMAN WITH TWENTY-FIVE years' experience in middle western territory with excellent following in Chicago, wishes to represent manufacturer in this territory. Best of references. Address Key 525, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

COMBINATION MAN WANTS STEADY position in good town, where living conditions are good. Wages no object. Address Key 528, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

Use this page to get what you want

If you are looking for competent employes; or if you contemplate a change in position, have a patent for sale; wish to purchase or sell a plumbing and heating business; second-hand machinery or tools; form a co-partnership, etc., your advertisement on this page will put you in touch with the people you desire to reach.

The cost of insertion is only eight cents a word and may mean many dollars to you.

Miscellaneous

NEW AND USED PIPE THREADING MACHINES

All Overhauled Before Shipment

8" Oster, motor driven.
8" Jarecki, belt driven.
6" Oster, portable, gasoline engine driven.
6" Williams, motor driven.
6" Curtis & Curtis, belt driven.
4" Oster, gasoline engine driven.
4" Oster, motor driven.

O'BRIEN MACHINERY CO.,
113 N. Third St., Philadelphia, Pa.

PLUMBERS' BIN LABELS

Send for samples and prices of card holders, bin labels and stop valve tags, and free booklets: "How to Lay Out the Plumbing Shop" and "How to Train the Apprentice Boys." Haddon Bin Label Co., Haddon Heights, N. J.

Get the Jobbing Order When You Estimate

Our Pocket Size Combination Estimate-Contract Sheets will help you. $1.00 for pad of 50 in duplicate promptly via ins. p.p. with samples of other Forms.

LOUIS FINK & SONS CO., Printers
Time Sheets, Job Tickets, Letter Heads, etc.
Estab. 1896. School Bldg., **Laurel Springs, N. J.**

Books for Your Trade Library

Merchandising the Plumbing Business. By Karl W. Zoeller.....	1.50
Overhead Expense and Percentage Methods. By Henry F. Baillet..	1.50
Practical Methods of Sewage Disposal. By H. N. Ogden and H. B. Cleveland	1.50
Questions and Answers on the Practice and Theory of Sanitary Plumbing. By R. M. Starbuck. Vol. I. Drainage and Venting.	2.00
Practical Steam and Hot Water Heating and Ventilation. By Alfred G. King.....	4.00
Heating and Ventilation. By Prof. John R. Allen and J. H. Walker.	3.50
Sanitation in the Modern Home. By John K. Allen.....	2.00

Domestic Engineering
Books Sent Parcel Post Prepaid
1900 Prairie Avenue, Chicago

YOU WOULD not think of missing your daily paper, yet it does not begin to help you as your business paper does, so why not spend a minute to send in your subscription? You will soon realize the tremendous help you have been doing without.
Domestic Engineering, 1900 Prairie Ave., Chicago

Index to Advertisers

July 26, 1930

Abendroth Bros. Co.....157
Air Reduction Sales Co.... 27
Air Tight Steel Tank Co..169
Alabama Pipe Co.....154
American Radiator Co..... 72
American Sanitary Mfg. Co. 18
Armstrong Bros. Tool Co..127
Automatic Gas-Steam Radiator Co. 160
Ayling & Reichert Co., The 169

Barber Gas Burner Co., The 24
Barnes Tool Co., Inc., The.104
Bead Chain Mfg. Co.....164
Beaton & Cadwell Mfg. Co. 93
Beaton & Corbin Mfg. Co..125
Bethlehem Steel Co..... 36
Black & Decker Mfg. Co.. 33
Brunswick-Balke-Collender Co. 166
Bryan Steam Corp..... 40
Bullard Specialty Co.....157
Burnham Boiler Corp..... 15
Butler Mfg. Co.....154

Capitol Brass Division of Bohn Aluminum & Brass Corp. 94
Carty & Moore Eng. Co...153
Case & Son Mfg. Co., W. A.128
Cement Lined Pipe Co.....163
Central Brass Mfg. Co., The 29
Century Brass Works.....137
Chapman Valve Mfg. Co...149
Chicago Faucet Co..... 9
Clow & Sons, Jas. B.....131
Coleman, Allan J.....156
Columbia Burner Co., The.101
Commonwealth Brass Corp.135
Compound Injector & Specialty Co. 133
Crane Co. 8
Curtin Valve Co., A. F....162

Dart Mfg. Co., E. M.....157
Decatur Pump Co.....133
Deming Co., The.....169
Detroit Brass & Malleable Works 166
Dixie Blower Co. The.....172
Dole Valve Co.....167
Domestic Stoker Co..... 37
Donnelly Mfg. Co.....154

EverHot Heater Co.....165

Fiat Metal Mfg. Co.....161
Flint & Walling Mfg. Co..173
Fords Porcelain Works.... 84
Fulton-Sylphon Co., The..121

Globe Mach. & Supply Co..127
Glore & Son, Inc., Evins F.125
Grabler Mfg. Co., The.....161

Haas Co., Inc., The Philip. 14
Hays Mfg. Co..... 71
Healy-Ruff Co. 157
Heggie-Simplex Boiler Co. 7
Hoffman Specialty Co.....165
Hotel Benjamin Franklin.174
Hotel Breakers 173
Hotel Havlin 174
Hotstream Heater Co.....167

Illinois Malleable Iron Co.136
Imperial Brass Mfg. Co....135
International Nickel Co... 88

Jarecki Mfg. Co.....156
Jenkins Bros. 30
Jenkins Mfg. Co.....162

Kainer & Co..... 26
Keeney Mfg. Co.....173
Kellogg Mfg. Co.....159
Kennedy Valve Mfg. Co...117
Kewanee Boiler Co..... .....Inside Front Cover
Keystone Pottery Co.....132
Kieley & Mueller, Inc.....155

Lavelle Rubber Co.....153
Linde Air Products Co.... 80

Malleable Iron Fittings Co.177
Marsh & Co., Jas. P..... 16
McDonnell & Miller..... 25
McQuay Radiator Corp....171
Milwaukee Flush Valve Co.168
Minneapolis Honeywell Regulator Co. 167
Morency-Van Buren Division, Scovill Mfg. Co.... 90
Mueller Brass Co..... 41
Mueller Co. 103
Multicell Radiator Co.....109
Myers & Bro., Co., F. E....167

Nash Engineering Co.....166
National Lead Co..... 43
National Pipe Bending Co.171
National Radiator Corp... 31
National Regulator Co.... 23
Neptune Meter Co.....106
Never-Split Seat Co.....169
Novelty Steam Boiler Wks.171
Nye Tool & Machine Wks. 13

Oatey Co., L. R.....164
Ohio Brass Co.....166
Ohio Heater Co.....168

Pacific Steel Boiler Corp.. 10
Paine Company, The.....172
Peerless Machine Co.....138
Penberthy Injector Co.... 77
Penna. Range Boiler Co...136
Perkins & Son, Inc., B. F.111
Powers Regulator Co..... 12

Reading Iron Co.....20
Reichert Float & Mfg. Co..173
Republic Brass Co..... 99
Republic Steel Corp..... 17
Richmond Fdy. & Mfg. Co.160
Ridge Tool Co., The..... 82

Sanymetal Products Co....150
Scovill Mfg. Co., Morency-Van Buren Division..... 90
Semler Company 134
Sheer Co., H. M.....154
Sherwood Brass Works... 11
Silent Automatic Corp..... 35
Simplex Mfg. Co.....168
Smith Co., The H. B..... 22
Smith & Wesson..... 32
Smooth-On Mfg. Co.....122
Speakman Co. 161
Spencer Heater Co..... .....Inside Back Cover
Standard Sanitary Mfg. Co. 87
Stockham Pipe & Fittings Co. 165
Stringer Bros. Co., Inc....154
Sturtevant Co., B. F.....162

Taber Pump Co.....168
Taylor Co., Halsey W.....159
Thomas & Armstrong Co., The 172
Toledo Pipe Threading Machine Co. 44
Trenton Brass & Machine Co. 138
Trupar Mfg. Co..... 96

Union Carbide & Carbon Corp. 80
United States Rubber Co.. 19

Vogel Co., Jos. A....3 and 178

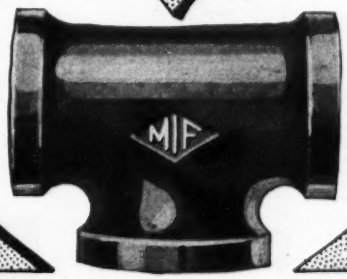
Wade Iron Sanitary Mfg. Co. 153
Walworth Co. 74
Warren, Webster & Co .. 28
Watts Regulator Company.162
Weil-McLain Company 21
Wessels & Sons Co., D. D..153
Wise, Inc., J. B.....165
Wolverine Brass Works... 5
Wolverine Tube Co.....161

"X" Laboratories..Back Cover

York Heating & Ventilating Corp. 163

MALLEABLE IRON FITTINGS

Make Every Job Your Best Job



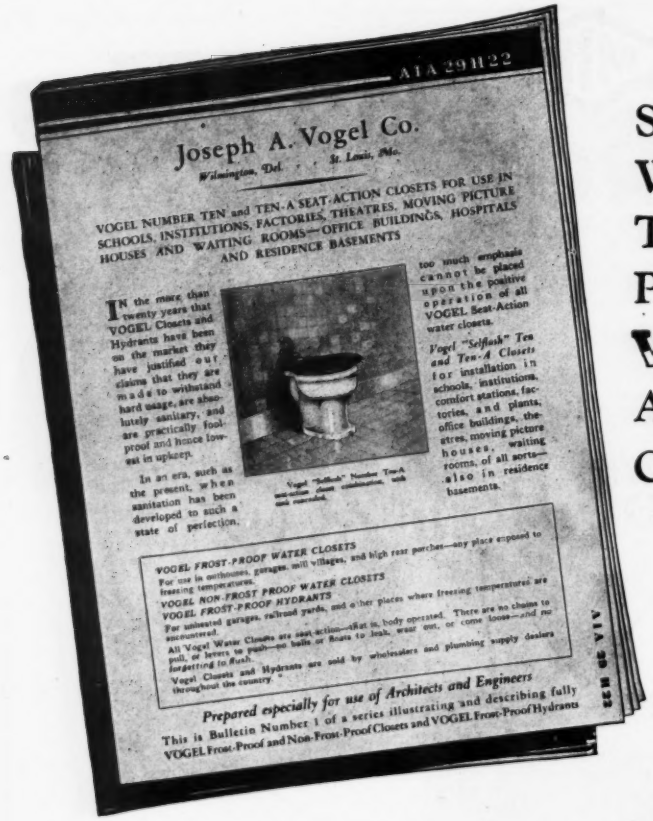
Put one on the line—take that as a challenge if you will but, *put one on the line!* When you do you are going to find out once and for all just what M. I. F. Fitting quality really is. You will learn how and why they make up so quickly and easily and make up *tight.*

And when you see that line again, even if it's a long time afterwards, the M. I. F. Fitting will still be there holding, holding, holding, against shock, wear and corrosion.

Put one on the line!

MALLEABLE IRON FITTINGS CO.
BRANFORD CONN.

MECHANICAL OR INJECTION OF FINISH OR STANDARD
MIF


A I A 29 H 22
Joseph A. Vogel Co.
Wilmington, Del. St. Louis, Mo.
VOGEL NUMBER TEN and TEN-A SEAT-ACTION CLOSETS FOR USE IN SCHOOLS, INSTITUTIONS, FACTORIES, THEATRES, MOVING PICTURE HOUSES AND WAITING ROOMS—OFFICE BUILDINGS, HOSPITALS AND RESIDENCE BASEMENTS
too much emphasis cannot be placed upon the positive operation of all VOGEL Seat-Action water closets.
Vogel "Selflush" Ten and Ten-A Closets for installation in schools, institutions, comfort stations, factories, and plants, office buildings, theatres, moving picture houses, waiting rooms, of all sorts—also in residence basements.
VOGEL FROST-PROOF WATER CLOSETS
VOGEL NON-FROST PROOF WATER CLOSETS
VOGEL FROST-PROOF HYDRANTS
Prepared especially for use of Architects and Engineers
This is Bulletin Number 1 of a series illustrating and describing fully VOGEL Frost-Proof and Non-Frost-Proof Closets and VOGEL Frost-Proof Hydrants

STILL ANOTHER WAY WE ARE HELPING YOU TO MAKE GREATER PROFITS INSTALLING VOGEL PATENTED NUMBER TEN AND NUMBER TEN-A CLOSETS

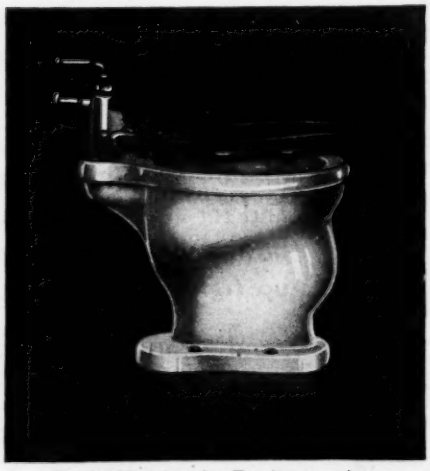
Designed especially for plants, factories, schools, institutions, theatres, comfort stations, waiting rooms, office buildings, and all public and semi-public places.

AN eight-page booklet, designed especially for architects, the first of a series on Vogel Products, has just been completed. This is being sent to a complete list of architects, as well as a selected list of those specializing in school work.

It has been carefully prepared, and conforms to the A. I. A. as well as other systems of filing used in architects' offices.

We have also asked school boards to write for the book, because it tells the complete story of Vogel Number Ten and Ten-A Closets clearly and concisely, and will be of great assistance to school boards contemplating improvements or new building projects.

The wide circulation which the book will have is sure to mean more jobs and more profits for you installing Vogel Number Ten and Ten-A Seat-Action Closets. This book will be followed by one on Vogel Frost-Proof Products.



Vogel Selflush Number Ten-A seat-action closet combination, with tank concealed.

See inside front page for VOGEL Frost-Proof advertisement.

JOSEPH A. VOGEL COMPANY
Wilmington, Del. St. Louis, Mo.

• • • VOGEL PATENTED Products • • •

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